



Entrepreneurial Risk: Jordan Baltimore and Oyster Digital Media

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As the global economic downturn entered the last quarter of 2009, Jordan Baltimore, a young but experienced entrepreneur, had to consider alternative funding for his start-up company, Oyster Digital Media. He had planned for venture capital to develop his “Oysters”—electronic shelf tags for retail stores. He was ready to launch his business just as funding became scarce and uncertain. Should he continue to try for venture capital? Angel investors or *Friends-and-Family* were alternatives, but they could involve less money and delay.

It was already 9:00 p.m. on Friday. Another long week was ending, and Jordan Baltimore wondered when he would get a call or a text message. He had met several venture capitalists (VCs) recently, seeking their funding for his start-up company, Oyster Digital Media. He was still waiting for a reply. Despite strong encouragement, none had yet offered a term sheet or asked for a follow-up meeting.

He was definitely in a mood to talk when he answered a surprise call from his former Master of Business Administration (MBA) professor. After catching up on the recent baseball season and life in New York City, the conversation turned to venture capital and Oyster Digital Media. Jordan had renewed his vision for a new business. It was to use small wireless devices—each resembling a hand-held GPS (“global positioning system” unit)—on retail store shelves. These “Oysters” would replace paper shelf tags that displayed price and product information. They would also present interactive product demonstrations and information (a picture of an Oyster on a store shelf is found in Figure 1). They would be networked together with a database in a unique information system that enabled centralized price control and interactive advertising. In the past year, Jordan had completed key parts of the plan to launch his company by developing the technology, the value proposition for his potential customers, and his revenue model. To continue software development, refine his prototype Oysters, and build his management team, Jordan intended to seek venture-capital funding. It seemed the best way to get to market quickly.

An economic downturn continued into the last quarter of 2009, however. Jordan reflected on the importance of timing. He had learned from recent experience that early stage money had become scarce. He explained, “I had finally refined the Oyster business idea to a point where I was ready to present it to outside investors. But at the same time, new venture funding had almost totally dried up.” The venture capital landscape had changed, perhaps permanently. The shift threatened to put delays and other complications in his path.

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Figure 1

Oysters Displaying Product Information on a Retail Store Shelf



Source: Oyster Digital Media

Only months before, a private placement company had offered \$1 million on a post-money valuation (the value of a company after an investment had been made) of \$5.6 million for Oyster Digital Media, but it was rescinded on the day the deal was to go to contract. Now, he did not know when he would see another offer like it. Jordan wondered what alternative funding he might still find, and how it might affect his plans to develop the business.

To date, Jordan paid Oyster Digital Media's expenses completely from his own savings, to a total of nearly \$250,000. Several different sources could provide the additional money he needed now. Each offered advantages, but each had its drawbacks. All presented questions that would have to be resolved to make the right choice. Jordan considered the options:

VC funding was still possible, but I had to be realistic and recognize that it was less likely than I had originally hoped. Even if I did get an offer, it could be at a lower valuation. I wondered about going to Angel investors or Friends-and-Family. I also considered more bootstrapping and bank loans. I was especially concerned about scale and time-to-market. If I had to accept less over a longer period, how could I adapt the business plan to build my management team, rent office space and equipment, and keep software development going? I heard rumors that competitors were building similar products, how would they affect my market position? Things seemed more uncertain every day.

U.S. Venture Capital Late in 2009

The media were filled with stories of stagnation in the United States venture capital market in fall 2009. With the exception of a few sectors like biotechnology and software development, most activity indicators were down year-on-year. Amid the global economic

downturn that started in 2008, VCs reduced investments in new businesses. In the first three quarters of 2009, only 1910 deals closed across the United States for an overall investment of \$12.2 billion. Compared with the same period in 2008, the number of deals was down by more than 30%, and the amount invested was reduced almost to 50% (PricewaterhouseCoopers/North American Venture Capital Association, 2009). VCs imposed intense screening on any new business proposals. They listened to fewer pitches, did fewer deals, and imposed tighter conditions on entrepreneurs as a hedge against failure.

VCs were certainly more cautious, but they were also less capable of making new deals. They faced the challenge that their existing portfolio companies might need more money than planned, and more time to achieve successful exits. It was pressure that could further limit the availability of capital for new ventures. In fact, the slowdown was partially imposed on VCs because exits had fallen off significantly. In the first three quarters of 2008, merger and acquisition exits in the United States were at 280, compared with 189 in the same period in 2009. Initial public offerings had practically stopped. There were 86 in 2007, 6 in all of 2008, and 8 year-to-date in 2009 (North American Venture Capital Association, 2009a, 2009b).

Fund raising was down as well, and even VCs that were not seeking to start new funds were affected. Potential limited partners, including institutions like pension funds and university endowments, were not as active or as liquid as in recent years. In the third quarter of 2009, VC fund raising in the United States consisted of 17 funds and \$1.6 billion. It represented the smallest number of new funds in any quarter since 1994, and the smallest investment amount since the first quarter of 2003 (North American Venture Capital Association, 2009a, 2009b). It was definitely not the best time for an entrepreneur like Jordan to launch a new business.

Jordan Baltimore

Jordan's strong interest in both computing and business began at an early age. He grew up playing computer baseball and keeping statistics in his own spreadsheet. He also did stock option yield analysis with SuperCalc, an early spreadsheet application. His knack for imagining uses for information technology (IT) produced several business ideas. They tended to be extremely practical products aimed at specific customers. When he thought of IT-based business models, they were always grounded in customers' needs as he had actually seen them.

Jordan's experience in retailing went back to his high school years in New York City. He started his first venture at the age of 16, an IT services firm that worked with some of New York's leading retailers. Before completing his undergraduate degree, Jordan sold the venture. In 1996, he went on to grow a single-site computer store with just 700 square feet of space into one of the country's top 100 consumer electronics retailers, with annual sales of over \$5 million.

Even in the rarified environment of the elite business school where he earned his MBA at the age of 25, Jordan stayed in touch with the "real world." Among classmates headed for investment banking and consulting careers, he was unique in his excitement for converting customers' interest into sales, for bargaining, and for closing deals. He even took a part-time job during his MBA studies, selling computers and digital cameras at the Circuit City store in Durham, North Carolina.

The next few years brought diverse opportunities and several career changes. In 2001, Jordan joined the private wealth-management group at Goldman Sachs. But he soon left

in search of new challenges. He became a founding member of Empirical Research Partners, an equity research boutique. Returning to industry, Jordan became chief operating officer of a regional building materials distribution firm that tripled in size under his direction. After 3 years, he launched Ocean Supply, an international distribution and development company based in New Jersey with operations in the Turks and Caicos Islands. In 2007, Jordan called on nearly 20 years of experience in marketing, retail, technology, operations, and finance to start Oyster Digital Media.

Jordan reflected:

It was really my experience at Circuit City that inspired Oyster Digital Media. On Sundays, our customers would come into the store looking for the prices they saw in newspaper ads or circulars. However, sometimes the prices were mismatched from newspaper advertisements to the sticker-on-box to shelf tags to the check-out register. While customers and store management believed it was due to simple mistakes or omissions, I knew the reality—store associates were supposed to change the shelf tags on Saturday nights—but many tags wound up in the associates' pockets rather than on the shelves. They were more focused on going out after work or going home than on replacing all the price tags. It caused complaints and lost sales. In the worst case scenario, there could even be legal prosecution. In Arizona and other states for example, the State Weights & Measures agencies levied fines amounting to millions of dollars for mispriced products at many major retailers.

Jordan's insight was that electronic shelf tags would eliminate most mismatches, thereby increasing customer satisfaction and sales. The shelf tags were only the beginning of the product bundle, however. They were augmented by the IT network that tied each Oyster together with multimedia files and with a database of product features, prices, and other information.

Oysters and Oyster Digital Media

"Oysters" was the name Jordan gave to his devices, playing on the idea of valuable "pearls" of information enclosed in a small, compact shell. Intended for use in retail stores, Oysters replaced paper shelf tags with electronic multimedia displays, most commonly stand-alone devices (Figure 2 shows a customer accessing product information on an Oyster). A "software-only" option was also available where the information was displayed directly on the monitors of some products like personal computers. It was an alternative that might fit some situations, since it would cost less, but was less flexible.

Customers could watch a video, change displays, search for specific information, get a price, and more, via the touch-screen (in Figure 3, a customer uses the touch-screen). One Oyster could deliver information for several models of a product, for example, five or six different models of the Nikon digital cameras.

Oysters were a form of dynamic digital signage (DDS). The technology used multimedia to excite interest among customers, inform them of product features and uses, and even entertain. The term may not have been widely familiar, but the products were common. DDS installations varied in scale from the huge animated signs in New York's Times Square or Tokyo's Shibuya district, to eye-level displays in airports and shopping malls, to handheld devices.

Oyster Digital Media's distinctive software also linked the visual display with an information system developed by Jordan and his team. The proprietary database and patent-pending method for content-serving were not matched by any competitors. The

Figure 2

Accessing Product Information on an Oyster.



Source: Oyster Digital Media

Figure 3

Oyster Touch Screen.



Source: Oyster Digital Media

in-store network could respond to a range of queries. It could be updated efficiently based on conditions in individual stores—for example, to offer hourly in-store specials.

Jordan intended to deploy Oysters in mid- to large-size retail chains like Sephora, Home Depot, or Dick’s Sporting Goods. However, based on personal experience and his professional network, he expected that consumer-electronics retailers like Best Buy were the most likely initial target market.

As his fourth business start-up, Oyster Digital Media presented both new and familiar challenges. The company in late 2009 consisted of Jordan himself, working full time as much as possible, several part-time employees, a close group of advisors, and contract software developers. Jordan's strategic advisors—leading executives in technology and media, consumer electronics, and advertising—were integral to developing the technology and the business model.

Retail Consumer Electronics Late in 2009

Consumer electronics was an extremely competitive market in the best of times. As the end of 2009 approached, times were far from the best. In the year before, the 2008 holiday season had been called “dismal” by business analysts. Same-store sales, a measure to compare current revenue with the same period in the previous year, were down significantly. Some retail chains had revenue declines of 25% or more.

According to CNBC (2008), “shoppers shifted purchases online at the end of December, which boosted e-commerce results. Still, overall e-commerce sales were in negative territory—down 2.3%. Sales above \$300 were at a virtual standstill.”

Prospects for the upcoming 2009 holiday season were not cause for optimism. Possible signs of an economic recovery in the United States and some other countries appeared in upturns in financial and industrial sectors. Yet job losses continued, hiring was slow, and consumer spending lagged. The Conference Board reported that consumers grew more pessimistic in October. Those anticipating that business conditions would improve over the next 6 months decreased to 20.8% from 21.3%, while those expecting conditions to worsen increased to 18.3% from 14.6%. In some respects, high-priced items considered nonessential were more sensitive to waning consumer confidence (Conference Board, 2009).

Some retail customers considered electronics purchases essential. They were the fans of particular video games or software applications, or the early adopters who wanted the first version of any new technology. To the mass market however, consumer electronics purchases were discretionary. Many large retailers reacted to the downturn by reducing their costs, pausing new initiatives, and concentrating on core activities. In fact, Best Buy reduced their capital expenditure from \$1.2 billion in 2008 to \$600 million in 2009. Jordan knew fewer chains were inclined to test new technology like Oysters—even if it promised greater efficiency and revenues. It amounted to a high level of uncertainty. However, he was confident that his potential customers would realize the value if they could only see Oysters actually installed and working in a store setting.

Did Vendors and Retailers Need Oysters?

In fact, Oyster Digital Media had two kinds of potential customers: vendors and retailers. The vendors—companies like Sony and Hewlett-Packard (HP)—sold their products in retail stores and could be interested in Oysters' functions. Retailers like Best Buy or Circuit City had two roles. First was to make the critical decision whether or not to deploy Oysters in their stores. They allocated shelf space, and controlled in-store displays. Jordan would need their approval. Second, retailers were potential customers who would pay fees for advertising that appeared on the Oyster displays. It complicated Jordan's plans to have two types of customers, but he was familiar with the needs of both and with the relationship between them.

Creating Value

Jordan made the point that much of his customers' value would be based on services delivered through each installation. They included efficient shelf-tag control, error reduction, product information, and advertising. The services promised value for both types of customers in new revenues and cost savings.

Vendors and retailers alike looked for ways to attract customers to particular products, and convert their casual interest to sales. Product information displayed on Oysters could efficiently target advertising to specific shoppers and increase the in-store close rate (the portion of inquiries that became sales). They could enhance cross-selling by recommending accessories and software. Jordan also believed that accurate and accessible information would enable customers to make more appropriate purchases, reducing the number of returns.

It was also little known outside of the business that retailers faced expenses in millions of dollars each year to print, update, and replace paper shelf tags. That information could be changed dynamically and accurately on an Oyster network with almost no additional personnel time. Finally, by conserving paper, plastic, and other materials, Oyster electronic displays were also a "green" merchandising solution.

Jordan was confident that he could demonstrate both the cost and revenue advantages. He worked closely with the analytics team from the now-defunct CompUSA to develop a detailed cost-benefit analysis of the implementation of Oysters in a consumer electronics retail chain. For example, efficiency from electronic shelf-tag management could bring savings of \$30,000 per store. About \$25,000 would be captured by vendors and \$5,000 by retailers. Actual savings could be greater since the estimate did not include reductions in the number of employees due to the potential effectiveness of Oysters as a selling tool.

From Value to Revenue

Jordan could convert customer value to revenue via two models. In one, Oyster Digital Media would rent the Oysters to vendors while continuing to own and manage them. In addition to charging rent, advertising space could be sold to vendors. Retailers could buy advertising, for example, for related products or in-store specials. They would be billed on a Cost-per-Impression basis, a Marketing metric for the value of customer traffic for a specific advertisement. Each impression carried a charge that would be captured as revenue at almost no marginal cost. However, the initial investment in hardware was a significant drawback of this option. The cost burden was especially critical early on, and could threaten Oyster Digital Media's liquidity. It led Jordan to prefer selling the Oysters to renting them.

In the other option, Oyster Digital Media would sell Oysters to the retailers, who would collect advertising revenues from the vendors as additional merchandising fees. Oyster Digital Media would capture more revenues in the short term from selling the Oysters along with their software. It would also take the initial costs to build the Oysters off the books. Finally Oyster Digital Media could earn more by servicing them for fees.

Under either model, Jordan projected that vendors would generate up to 80% of his per-store revenues. They traditionally paid much of the cost of stocking, advertising displays, and some other expenses through "slotting" (also called MDF or "market development fund") fees, "co-op" (sponsored) advertising, and special sales.

Competitive Advantage

Jordan was sure that Oysters created value, but he also had to differentiate them from competitors' products in the thinking of retailers and vendors. He had to give them reasons to buy Oysters instead of several different kinds of substitutes. Potential competitors already existed, if not precisely in Oyster's target market, then in tangential niches of in-store marketing. Merchandising and display companies used traditional media—posters, signs, and the like. MTI was an example. The company manufactured merchandising fixtures (and recently digital displays). They obviously did not have many of the features of Oysters, but they were familiar, and might seem a safe choice to retailers. Some DDS was also available, although these products typically consisted only of graphic displays. They lacked the dynamic networked functions, like storewide price updating, of Oysters. DDS displays were sold by companies like Premier Retail Networks.

Barriers against later entrants and imitators included Oyster Digital Media's patent-pending, content-serving method. However, Jordan felt the patent would have more value as a signal of legitimacy to investors than as a deterrent to competitors. It was also only a matter of time before they would catch up with the Oyster technology. The company's focus on content, integration, and innovation would help make for a durable competitive advantage. Network effects could play a major role. Jordan noted that,

Oysters were basically an engaging visual display linked to an information network. The network itself could be a huge source of competitive advantage. By moving first into the store chains, I expected to lock in vendors and retailers. They would never install a competitor's system in a store that already had Oysters. Switching costs (e.g., adopting new software and employee training) were a big incentive for customers to stay with Oyster Digital Media. If they were happy with Oysters, why would they change? Network effects would work at the chain level too, where the marginal cost to a retailer to deploy Oysters in all their stores was lower. Switching costs to change to another provider were on an even greater scale once they have committed to the Oyster system.

Durable competitive advantage would be based on moving early, on making the use of Oysters a routine experience with customers, and on the network advantages to retailers and vendors. Jordan also envisioned upgrades that would eventually increase functionality and value of his offering. So far, Oyster Digital Media provided the only end-to-end solution for digital pricing and content in retail stores.

The Initial Launch Strategy

These variables were factored into statements and *pro formas* (financial projections) that Jordan used to estimate his future financial position and to pitch his business model. His initial strategy depended on \$1 million funding and the valuation by VCs described later (Table 1 develops the typical average cost of an Oyster to the vendor and retailer—a key part of the revenue estimates to follow—using an example scenario).

The assumptions and estimates were consistent with Jordan's experience, and with his consultants' analysis. They were based on a medium-sized retail chain with 40–80 stores over a 4-year time frame. The scenario was to sell the Oysters rather than rent them, and led to an average price of \$262 per Oyster in the first year, declining to \$178 per unit with greater volume and efficiencies by the fourth year. Value-added services, delivered on the Oyster network, would make the major contribution to projected revenue.

Over the period, the retailer would host from 18 to 34 vendors selling 3,360–6,250 products. (The number of vendors and products would expand over the projected 4 years.)

Table 1

Oyster Unit Price Estimate for a Typical Medium-Sized Retail Chain

	Year 1	Year 2	Year 3	Year 4
Headcount	10	16	21	26
Retail locations	40	50	65	80
Product vendors	18	27	31	34
Total products	3,360	5,200	5,860	6,250
Unique products	84	124	160	184
Average price	\$262.50	\$200.00	\$190.00	\$178.00

Source: Oyster Digital Media.

A scenario-based forecast was necessary because of the variety of possible layouts for the devices and information. For example, the majority of Oysters could be the “software-only” version. In another option, one Oyster device could be shared by up to eight models of a product (i.e., digital cameras or mobile phones) on the store shelf. While not the cost and price structure of an actual installation, Table 1 does give a benchmark to both make and evaluate the *pro formas* for Oyster Digital Media.

The \$1 Million Venture Capital Funding Plan

Jordan’s initial launch strategy was based on his expectation of \$1 million in a first round of funding from VCs (a detailed financial and operational summary for Jordan’s initial model is presented in Table 2). It called for a year-long pilot project, followed by a multi-year rollout to reach \$85.4 million in revenues and earnings before interest, taxes, depreciation, and amortization (EBITDA) of \$57.3 million. Jordan’s major cost categories were hardware—sourcing the Oysters, software development, and commissions and revenue sharing. Oyster Digital Media would grow staff throughout the 5 years, and end the period with four senior managers in place and total number of 31 employees.

The full 5-year projected income statement with \$1 million funding is shown in Table 3.

Table 4 shows the accompanying projections of operational metrics and financial statements for \$1 million funding. It illustrates how Jordan’s revenues were to be based principally on value-added services, as opposed only to the number of Oysters sold and their prices.

Even though the exact numbers for key parts of projections were typically uncertain for a pre-revenue company (with no products sold yet) with a new technology, Jordan was confident in the basic assumptions and general estimates for key variables like revenues and EBITDA. He was actually more concerned with the source of his funds and the effects on his timeline. He might have to make significant changes if he had to give up on VCs, and go for a smaller amount of capital.

Next Steps

Jordan’s initial \$1 million plan was to introduce Oysters as a pilot project with a single national retailer, but at multiple store locations. It would involve 11 retail stores and four

Table 2

\$1 Million Funding Summary *Pro Forma*

Financial Summary

	Pilot	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue		\$4.3 MM	\$13.1 MM	\$28.5 MM	\$56.4 MM	\$85.4 MM
EBITDA	(\$.97 MM)	(\$.7 MM)	\$3.5 MM	\$13.8 MM	\$29.5 MM	\$57.3 MM
Retail stores	11	105	205	355	605	855
Vendors	4	8	18	27	31	31
Headcount	3	18	20	23	28	31
Executive	3	4	4	4	4	4
Finance	0	1	1	1	1	1
Sales	0	2	2	2	2	2
Markings	0	1	1	1	1	1
Technology	0	8	10	13	18	21
Content	0	1	1	1	1	1
Analysis	0	1	1	1	1	1

Source: Oyster Digital Media.
EBITDA, earnings before interest, taxes, depreciation, and amortization.

different vendors. That scale would make a convincing proof-of-concept. The funding would also allow him to hire some of the core management team. The pilot and preparation for the full rollout could be handled by just three managers. It supported several goals—to help prove the operational and marketing concepts, and to demonstrate retailer cost savings, sales uplift of primary products, cross-selling opportunities, and increased customer satisfaction. The pilot was to include notebook and desktop computers and accessories.

With a successful pilot, Oyster Digital Media would have several horizontal and vertical growth opportunities. The networked display systems were both portable and scalable to retail markets other than consumer electronics—for example, home appliances. Potential additional retail categories included home improvement stores like Home Depot, and discount retailers like Walmart. However, that would come later.

Jordan next had to move closer to the pilot implementation. Several critical chores remained. One was to finalize software customization. It called for more of Jordan’s time and for more effort from the software developers. Additional funds were also needed for the initial purchase of the hardware for the pilot installation.

Another important step was to fill out the core management team. It was not a large-scale effort, but it involved recruiting for a few key positions, including technology project manager and content and marketing manager. Those responsibilities were most immediate to building the Oyster network, managing the pilot, and locating other clients. Jordan had identified one industry-leading manager. He was currently employed by a potential competitor, but had shown interest in Oyster Digital Media, and appeared likely to move with the right offer. This and the other core hires required some cash for salary compensation and allowance for stock options.

Table 3

\$1 Million Funding 5-Year *Pro Forma* Income Statement

	Pilot	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue						
Vendor sales	\$0	\$2,581,689	\$9,336,339	\$23,158,955	\$47,116,734	\$71,577,962
Accessory sales	\$0	\$968,358	\$2,349,261	\$3,800,936	\$6,975,287	\$10,427,544
Category sales	\$0	\$665,746	\$1,615,117	\$2,613,143	\$4,795,510	\$7,168,937
Advertising sales	\$0	\$527,631	\$1,280,046	\$2,071,023	\$3,800,637	\$5,681,675
Analytics sales	\$0	\$0	\$0	\$0	\$0	\$0
Allowances	\$0	(\$474,343)	(\$1,458,076)	(\$3,164,406)	(\$6,628,817)	(\$9,485,612)
Total revenue	\$0	\$4,269,083	\$13,122,687	\$28,479,651	\$56,419,350	\$85,370,506
Cost of goods sold						
Retailer hardware and installation	\$82,500	\$705,000	\$750,000	\$1,125,000	\$1,875,000	\$1,875,000
Hardware	\$89,100	\$716,400	\$2,530,000	\$4,260,000	\$6,532,500	\$6,000,000
Software	\$209,100	\$408,900	\$961,500	\$1,659,500	\$2,674,000	\$2,575,000
Sales commissions—inside sales	\$0	\$74,829	\$236,853	\$528,173	\$1,052,374	\$1,593,777
Sales commissions—rep firm	\$0	\$237,434	\$576,021	\$828,409	\$1,520,255	\$2,272,670
Retailer revenue sharing	\$0	\$187,073	\$592,132	\$1,320,431	\$2,630,936	\$3,984,442
Maintenance	\$11,000	\$88,000	\$313,500	\$582,000	\$1,183,000	\$1,974,000
Replacement hardware	\$0	\$0	\$0	\$0	\$3,515,750	\$0
Total cost of goods sold	\$391,700	\$2,417,636	\$5,960,006	\$10,303,513	\$20,983,815	\$20,274,888
Gross profit	(\$391,700)	\$1,851,447	\$7,162,681	\$18,176,138	\$35,435,535	\$65,095,618
Gross margin (%)	0	43	55	64	63	76
SG&A						
Salaries	\$256,650	\$1,457,730	\$2,374,817	\$2,714,240	\$3,329,498	\$4,124,998
Legal expense	\$45,000	\$68,000	\$70,000	\$68,000	\$58,000	\$50,000
Bookkeeping expense	\$10,000	\$0	\$0	\$0	\$0	\$0
Marketing expense	\$35,000	\$85,382	\$196,840	\$284,797	\$564,194	\$853,705
Rent expense	\$30,000	\$240,000	\$252,000	\$264,600	\$277,830	\$291,722
Internal IT expense	\$21,865	\$23,000	\$18,000	\$10,000	\$10,000	\$10,000
Travel expense	\$41,625	\$130,500	\$264,500	\$314,500	\$410,333	\$535,333
Research expense	\$75,000	\$65,000	\$50,000	\$50,000	\$50,000	\$50,000
Content expense	\$62,434	\$474,343	\$437,423	\$632,881	\$1,253,763	\$1,897,122
Total SG&A	\$577,574	\$2,543,954	\$3,663,580	\$4,339,018	\$5,953,618	\$7,812,880
EBITDA	(\$969,274)	(\$692,507)	\$3,499,102	\$13,837,120	\$29,481,917	\$57,282,738
EBITDA margin (%)	0	-16	27	49	52	67
Taxes	\$0	\$0	\$734,928	\$5,534,848	\$11,792,767	\$22,913,095
Net income	(\$969,274)	(\$692,507)	\$2,764,174	\$8,302,272	\$17,689,150	\$34,369,643

Source: Oyster Digital Media. EBITDA, earnings before interest, taxes, depreciation, and amortization; IT, information technology; SG&A, selling, general, and administrative expense.

Finally, further research and testing were needed. Future sales presentations should be supported with hard data from the pilot and analysis of retail customers' responses to Oysters in the stores. Jordan identified Nielsen In-Store Media as the most likely provider of this information. They had the skills and reputation to deliver credible market data to potential customers among vendors and retailers.

He originally expected that \$1 million in first-round money, allocated to these needs, would suffice through the last quarter of 2010. Then, a successful pilot would lead to follow-on funding requirement of \$1.5 million for the national launch. Oyster Digital Media should get more favorable terms from VCs in that funding round if there were strong results from the pilot and a more complete management team.

Table 4

\$1 Million Funding Financial and Operational Projections

Financial Metrics

	Pilot	Year 1	Year 2	Year 3	Year 4	Year 5
Headcount	3	18	20	23	28	31
Revenue per employee	\$0	\$237,171	\$656,134	\$1,238,246	\$2,014,977	\$2,753,887
Net profit per employee	(\$323,091)	(\$38,473)	\$174,955	\$601,614	\$1,052,926	\$1,847,830
Cost per employee	\$85,550	\$80,985	\$118,741	\$118,010	\$118,911	\$133,064
Stores		105	205	355	605	855
Revenue per store		\$63,246	\$78,344	\$104,035	\$113,122	\$114,017
Net profit per store		(\$10,259)	\$20,890	\$50,547	\$59,112	\$76,504
Vendors—televisions		0	2	5	5	5
Revenue per television vendor		\$0	\$5,719,663	\$2,620,802	\$3,674,322	\$5,492,843
Televisions		0	6,560	15,975	27,225	38,475
Revenue per television		\$0	\$1,744	\$857	\$819	\$815
Vendor—digital cameras		0	4	7	10	10
Revenue per digital camera vendor		\$0	\$1,009,612	\$555,176	\$958,824	\$1,382,819
Digital cameras		0	3,690	9,585	33,275	47,025
Revenue per digital camera		\$0	\$1,094	\$529	\$350	\$336
Vendors—notebooks		5	8	11	11	11
Revenue per notebook vendor		\$444,250	\$845,341	\$1,047,933	\$1,767,533	\$2,642,333
Notebooks		2,940	7,995	14,200	24,200	34,200
Revenue per notebook		\$1,023	\$948	\$962	\$975	\$970
Vendor—desktops		3	4	4	5	5
Revenue per desktop vendor		\$682,136	\$1,430,077	\$2,110,616	\$3,419,847	\$4,899,609
Desktops		960	2,520	3,920	7,950	11,700
Revenue per desktop		\$2,768	\$2,351	\$2,237	\$2,247	\$2,203
Products		3,200	9,540	29,120	31,720	34,320
Revenue per product		\$2,914	\$2,002	\$1,256	\$1,220	\$1,152
Net profit per product		(\$473)	\$534	\$610	\$638	\$773

Source: Oyster Digital Media.

Note: Stores, vendors and products are displayed in year-end figures. Revenues are calculated on a full-time equivalent basis to account for deployment throughout the year.

Funding and Development Options

As his former professor listened, Jordan reviewed his financing options, and considered the strategic implications. Determined to get Oysters into the market, Jordan broadened his thinking about both the amount he needed to raise and the possible sources.

To go ahead with his next steps as originally planned, Jordan estimated he needed \$1 million from VCs. He had to admit that VCs were an unlikely option. Some indicated that Oyster Digital Media was too early in development. Especially in the current venture funding market, they needed stronger proof-of-concept. Some might be interested later, when there were revenues. Jordan also recalled how much time he had spent previously to solicit VCs. Calling, scheduling, traveling, and pitching his ideas had taken his time and attention away from the building the business. He would be much more careful to tend to developing and managing Oyster Digital Media in the future.

Table 5

Oyster Digital Media's \$360,000 *Pro Forma* Income Statement

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue					
Software sales	\$350,000	\$2,100,000	\$7,500,000	\$12,000,000	\$20,000,000
Analytics sales	\$0	\$0	\$1,200,000	\$2,300,000	\$4,000,000
Total revenue	\$350,000	\$2,100,000	\$8,700,000	\$14,300,000	\$24,000,000
Expenses					
Salaries	\$180,000	\$1,046,000	\$1,406,280	\$1,834,015	\$2,438,078
Executive	\$0	\$200,000	\$375,000	\$393,750	\$413,438
Finance	\$0	\$99,750	\$104,738	\$109,974	\$115,473
Sales	\$0	\$73,150	\$91,438	\$365,750	\$731,500
Marketing	\$0	\$86,450	\$90,773	\$95,311	\$100,077
Technology	\$85,000	\$232,750	\$244,388	\$256,607	\$269,437
Content	\$0	\$86,450	\$90,773	\$95,311	\$100,077
Analytics	\$0	\$86,450	\$90,773	\$95,311	\$100,077
Legal expense	\$15,000	\$20,000	\$50,000	\$75,000	\$100,000
Marketing expense	\$15,000	\$25,000	\$75,000	\$120,000	\$200,000
Rent expense	\$30,000	\$36,000	\$38,400	\$42,000	\$48,000
Internal IT expense	\$15,000	\$25,000	\$20,000	\$10,000	\$10,000
Travel expense	\$15,000	\$25,000	\$75,000	\$100,000	\$125,000
Research expense	\$5,000	\$25,000	\$25,000	\$25,000	\$25,000
Content expense	\$0	\$25,000	\$35,000	\$50,000	\$100,000
Total expenses	\$360,000	\$2,092,000	\$2,812,560	\$3,668,029	\$4,876,156
EBITDA	(\$10,000)	\$8,000	\$5,887,440	\$10,631,971	\$19,123,844
EBITDA margin (%)		0.4	67.7	74.3	79.7
Taxes	\$0	\$0	\$2,354,176	\$4,252,788	\$7,649,538
Tax loss carryover	\$0	(\$2,000)	\$0	\$0	\$0
Net income	(\$10,000)	\$8,000	\$3,533,264	\$6,379,182	\$11,474,307

Source: Oyster Digital Media.

The \$360,000 Funding Plan

Jordan wondered if he ought to stop trying for VC money, at least for this round of funding. It would help him focus on other ways to get Oyster Digital Media going. Since VCs were the only source of financing that he had planned, a change could call for deep adjustments. Thinking that a scaled-down implementation could be in the domain of Angel investors or even of Friends-and-Family, he devised an approach that called for only \$360,000 in seed money. It was about 60% of what he had initially planned, and would even put Oyster Digital Media under the minimum investment level for VCs (Table 5 shows a *pro forma* for this option).

It would be a small implementation in a single, regional retailer like Fry's electronics stores. Instead of several vendors and products, it would involve a single vendor and a single product in the notebook category. Further network software development would be included, but only as needed for the pilot. Additional management team members would be paid on a consulting basis, or their hiring simply delayed.

The plan would better fit a smaller investment. Still, Jordan had to consider possibly significant effects on Oyster Digital Media's operations. Among the risks, proof-of-concept in a single location might not be enough to convince retailers, vendors, and VCs of the value of replacing existing paper shelf tags with Oysters. The impact of the small deployment might not be as persuasive as a larger one, and vendors might still hesitate to

reallocate portions of their marketing budgets. The network benefits might seem less real and persuasive. Larger retailers could still seek lower cost and delayed implementation—requiring additional funding after the pilot. For all the risks, the \$360,000 option could at least keep Oyster Digital Media moving to market without VC support.

Valuation

Jordan had developed three main options: (1) to try again with VCs for \$1 million as originally planned; (2) to scale back for \$360,000 funding through an Angel investor; or (3) target the \$360,000 funding but raise it through Friends-and-Family. While the amount was the same for the latter two, Jordan expected that investors would differ in their goals, expertise, and dispositions toward Oyster Digital Media. He considered them separate options. He stated that,

Bringing my aunt or father-in-law into funding Oyster Digital Media is totally different from Angels or VCs. Friends-and-Family would be more inclined to invest because of their relationship with me. They would not have the knowledge or inclination to bargain aggressively over value. I just don't think most are as sophisticated or as disciplined as Angel investors. I feel responsible for their money. Also, they are family, and I will see them indefinitely into the future! On the other hand, Angels' main interest is their multiple at exit. They would push harder for the greatest share of the company for their investment. So they will tend to expect and support a lower valuation.

A valuation was an estimate to answer the question, how much was the company worth at present, based on future earnings up until the time when the investors liquidated their shares? It might help Jordan evaluate the funding sources open to him, and plan for negotiations. At least some VCs and Angels—even Friends-and-Family—would use a valuation model to decide how much of the company they should expect in return for their investment.

A starting point was to estimate the effective discount rate. If Jordan constructed a present-value model using the \$5.6 million valuation he received in 2009 and his net income in each year in his *pro forma* (see Table 2), he could estimate the discount rate (see Appendix 1, equation 1 for the formula). He was realistic enough to expect a higher discount rate and lower valuations in the ongoing economic downturn.

Conditions made the valuation of Oyster Digital Media both uncertain and complex. As a pre-revenue company, the present value was very uncertain. Further, several different funding sources and levels were possible. Many investors at this stage would simply base a decision on experience, heuristics, and intuition. It made sense to use more than one method to calculate the valuation.

The venture method would typically be used by early-stage investors like those who might be interested in Oyster Digital Media. Instead of near-term cash flows, they expected a large payoff when a new venture was sold or taken public. The model used a price/earnings (P/E) ratio method to determine the terminal value, and then used discounting to determine the present value of the enterprise. Jordan suggested a P/E ratio of 2 based on a recent comparable. Signstorey, a DDS provider, was acquired by CBS in September 2007 at approximately a two times multiple of discounted year five earnings. With that P/E ratio and his financial forecasts, he could use a variation on the venture method (the formula is found in Appendix 1, equation 2).

The First Chicago method was another option. It was a means to compare the value of Oyster Digital Media for each alternative funding source under best, worst, and middle

market-performance scenarios. It could be useful to Jordan to compare expected results from the \$1 million from VCs side-by-side with the \$360,000 from the Angel and Friends-and-Family alternatives.

Three scenarios for net income by Oyster Digital Media could be developed for each funding source. Probabilities for each level of net income could then be estimated, and an expected value calculated (the formula for First Chicago method is found in Appendix 1, equation 3).

Additionally, Jordan made one more estimate of a value for Oyster Digital Media as a check on results of the Angel and Friends-and-Family alternatives from the First Chicago method. He explained his logic:

The private placement company was willing to offer \$1 million on a post-money valuation of \$5.6 million. That would equate to 17.86% of the company. With projected year 5 earnings of \$34,369,643, that makes our valuation today equal to 16.29% of our projected year 5 earnings.

If we take 16.29% of our projected year 5 earnings of \$11,474,307 in the \$360,000 model, we can estimate a Friends-and-Family round valuation of \$1,869,184. It means that \$360,000 would buy 19.26% of the company. We can then go back to the First Chicago Method to triangulate a Friends-and-Family valuation, which I expect to land at about \$1.5 million.

Then there is the Angel valuation. Friends-and-Family would decide whether to invest partly because they care about me. Also, a single Angel is likely to negotiate a bigger piece of the pie based on a stricter business perspective and their “buying power.” It’s almost like a volume discount compared with 36 friends and family members, each giving \$10,000. I figure it is likely that an Angel will look for 25%–33% of the company for a \$360,000 investment today—pegging Oyster’s valuation at about \$1 million in an Angel round.

These values for Angel or Friends-and-Family rounds should be close to the expected values in the First Chicago Method.

Where the other valuation estimates were similar to this one, Jordan could feel more confident in his analysis, and he could return to the strategy issues ahead.

Jordan’s professor helped him work through the costs, benefits, and other implications. But Jordan would have to make the final decision. It was getting late. They agreed that he should take a fresh look at the three options, and perhaps some others. They would talk again in the morning. Then Jordan would decide the best way to go forward.

Appendix 1

Formulas for Effective Discount Rate and Valuation Using Venture and First Chicago Methods

Equation 1. Discount Rate Estimation

$$\text{Present value} = C1 + [C2/(1+r)] + [C3/(1+r)^2] + \dots + [Cn/(1+r)^{n-1}]$$

Where C_n = net income in year n

r = discount rate

Using Jordan's previous valuation and his net income estimates from Table 3,
 $\$5,600,000 = [-969,274] - [692,507/(1+r)] + [2,764,174/(1+r)^2] + [8,302,272/(1+r)^3] + [17,689,150/(1+r)^4] + [34,369,643/(1+r)^5]$

Equation 2. Venture Method

$$\begin{aligned}\text{Present value} &= [\text{terminal net income} * P/E \text{ ratio}] / [(1+r)^5] \\ &= [34,369,643 * (P/E)] / [9.710] \\ &= [34,649,643] / [9.710] * (P/E) \\ &= [34,639,643] / [9.710] * (P/E) 3,542,889 * (P/E)\end{aligned}$$

Equation 3. First Chicago Method

Equation 3.1 VC Funding Scenario

$$\begin{aligned}\text{NPV} &= [\text{NPV (Best Case VC Outcome)} * p(\text{Best Case VC Outcome})] + \\ &\quad [\text{NPV (Average Case VC Outcome)} * p(\text{Average Case VC Outcome})] + \\ &\quad [\text{NPV (Worst Case VC Outcome)} * p(\text{Worst Case VC Outcome})]\end{aligned}$$

Equation 3.2 Angel Funding Scenario

$$\begin{aligned}\text{NPV} &= [\text{NPV (Best Case Angel Outcome)} * p(\text{Best Case Angel Outcome})] + \\ &\quad [\text{NPV (Average Case Angel Outcome)} * p(\text{Average Case Angel Outcome})] + \\ &\quad [\text{NPV (Worst Case Angel Outcome)} * p(\text{Worst Case Angel Outcome})]\end{aligned}$$

Equation 3.3 Friends-and-family (F-a-F) Funding Scenario

$$\begin{aligned}\text{NPV} &= [\text{NPV (Best Case F-a-F Outcome)} * p(\text{Best Case F-a-F Outcome})] + \\ &\quad [\text{NPV (Average Case F-a-F Outcome)} * p(\text{Average Case F-a-F Outcome})] + \\ &\quad [\text{NPV (Worst Case F-a-F Outcome)} * p(\text{Worst Case F-a-F Outcome})]\end{aligned}$$

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Note to Instructors on Entrepreneurial Risk: Jordan Baltimore and Oyster Digital Media

Introduction

Facing uncertain venture capital (VC) funding in the economic downturn in the last quarter of 2009, Jordan Baltimore, a young but experienced entrepreneur, unexpectedly had to consider alternative funding sources. VC funding at \$1 million and Angel investor or Friends-and-Family funding of \$360,000 are considered for the financial and strategic effects. The case and Teaching Note include information and *pro formas* (financial projections) that allow detailed comparisons of the three funding sources, alternative valuation methods, and their effects on the strategy of Oyster Digital Media. The case is suitable for Master of Business Administration (MBA) and advanced undergraduate courses to compare alternative early-stage investors, study the link between finance and strategy, and discuss valuation.

Key Issues and Discussion Points

The case raises several issues for discussion and debate:

1. uncertainty and adaptation in new ventures;
2. comparison of early-stage funding sources;
3. valuation models and estimates for a pre-revenue company;
4. the link between financing options and strategy; and
5. network effects of an information technology product.

Potential Audiences and Uses

The case is intended for a Master of Business Administration course in Entrepreneurship or New Venture Financing. It is also suitable for an advanced undergraduate course. The instructor may use it to illustrate the inherent uncertainty of starting a new business, the trade-offs among alternative venture funding sources, and valuation models and estimates. The case demonstrates the connection between a financial decision and business strategy. Students should generally find the retail consumer electronics market familiar and easy to discuss, and be comfortable with the new technology. Jordan Baltimore should be identifiable to them as a young but experienced entrepreneur with a strong business concept and real-world experience.

Suggested Teaching Approach

Both Jordan and the technology resonate with students. It is an engaging start to ask what they think of him and his business model. The instructor should note that the revenue