



Cast Musical Spells.

<http://pentagrammusic.com>

Pentagram Music Business Plan

MUSIC SHAPER

The magic of music at your fingertips.

EXECUTIVE SUMMARY

Pentagram Music is a new C-Corporation focused on music software product sales. The Pentagram Music Quest is to democratize musical creativity. We will provide a new platform for musical expression, collaboration, creativity and content sharing. Arthur C Clarke said, “Any technology sufficiently advanced will appear to be magic.” The magic of our technology will enable music lovers to cast musical spells. Pentagram Music will target the prosumer music enthusiast. The company will leverage the design skills, music skills, and engineering skills of its staff to establish a niche position as experts in advanced music technologies.

This new music platform will take advantage of three key market-enabling forces—first, the rise of multi-touch. The Apple iPad represents the first 10 finger multi-touch device with deep market penetration. True 10 finger multi-touch solutions are in production for laptop and desktop computing. User acceptance of multi-touch presents an opportunity for a paradigm shift in human-computer interactions.

Second, contemporary web trends have established a proven appetite for creativity, collaboration and sharing tools. Social networking, Youtube, SoundCloud, and blogging are three examples of content sharing technologies with hundreds of millions of users.

Third, Music Software has become a multi-billion dollar marketplace. With the convergence of online content sharing and multi-touch technology, a window of opportunity is opening for an entirely new user experience in music. Pentagram Music will offer a line of software designed to capitalize on this opportunity—graphical, touch based music composition with collaboration and sharing through online communities.

The first offering in the Pentagram Music software line is MusicShaper—an iPad application that translates music theory into a notation of shape and color, allowing the user to easily and intuitively express themselves musically through touch interactions.

The iPad market size is predicted to be 10 million users by year-end. Of all iPad users, 91% bought applications. 45% of these users bought music applications. Assuming a 1% penetration into this market, MusicShaper can generate 1.5 million dollars revenue. This income will be used to move Pentagram Music to the delivery of follow up applications that support the long-term vision for the Pentagram Music platform.

The Pentagram Music platform will consist of a line of products that are estimated to bring in \$20M per year in gross revenue by our fourth year. In order to achieve this scale of operations, Pentagram Music is requesting Series A funding of \$500k and series B funding of \$4M. Series A funding will be used for development of and a marketing campaign for MusicShaper, the first product in the platform. Profits from MusicShaper and Series B funding will be used for the development and marketing of MusicArchitect, and the follow up products in the Pentagram Music Platform. Pentagram Music will follow an IPO exit strategy.

Pentagram Music personnel will consist of staff recruited at Harvey Mudd College, with partners from CodeSource Software Corporation, and Fortyseven communications, an established marketing company with an excellent reputation.

Pentagram Music has competition in the form of Musical DNA—a company who has released a first application of a similar nature. However, Musical DNA fails to deliver a compelling user experience, and is missing key aspects of the geometry and mathematics required to implement a useable application. For MusicShaper, Pentagram Music will leverage its depth of knowledge in the application domain, its experience in software development, and rapid prototyping to develop an excellent user experience. The company will provide software, which encodes a process for songwriting, using a geometric approach that is clear, simple, and functional. No other vendor has released a product that achieves this goal, at this time.

BUSINESS DESCRIPTION

Background

Pentagram music is new C-Corporation focused on software product sales. The Pentagram Music Quest is to democratize musical creativity. We will provide a new platform for musical expression, collaboration, creativity and content sharing. Arthur C Clarke said, “Any sufficiently advanced technology is indistinguishable from magic.” The magic of our technology will enable music lovers to cast musical spells.

Management

Mark Strachan is the CEO of the company and has 20 years of software development experience. He runs a software outsourcing company named CodeSource Software that services Fortune 500 customers in biotech, finance, iDevice, product development, software infrastructure, and supply chain management. The team consists of a group from Harvey Mudd including:

- Chris Ramos – musician, mechanical engineer
- Nicholas Card – systems engineer
- Nicole Cristoso – drummer, physicist
- Harry Wornick – mechanical engineer
- Josh Erhlich – computer scientist
- Anatole Paine – video game developer

We also get support from the following advisors:

- Professor Keller – professor of computer science specializing in Jazz improvisation
- Alexander Francois – providing advice in computer music, industry research
- David Nimitz – interim CFO
- Sibel Sunar – director of Fortyseven communications, will sit on board of advisors and coordinate a marketing campaign

Industry Description and Markets

In the last 20 years, digital signal processing architecture has advanced to the point where real time audio computation is possible on personal computing devices. This has enabled the development of a market for music software appealing to a wide range of customers. This market, known as the prosumer, is computer literate, technology savvy, urban, and sophisticated. These individuals will typically have ambitions to establish themselves socially as artists using any form of expression available. To fulfill their need for social interaction, these users will seek tools to assist them with self-expression. The results of their creativity provide them with personal reward that re-enforces their need for the technology.

The prosumer frequents the internet and already uses a variety of related internet applications and websites. These applications include services such as Bandcamp, SoundCloud, Magnatune, MySpace, and musical video gaming. Bandcamp has a userbase of ~72,500 bands and sells \$500,000 worth of music, from which they take a 10-15% cut. SoundCloud has over one million subscribers, the majority of which contribute music to service. MySpace is designed to promote bands, and is a social networking around music with over eight million band pages. Music games such as "Rock Band 2" and "Guitar Hero: World Tour" have online multiplayer communities and sold over five million copies in 2008 alone.

Business Influences


Our technology will depend on a multitouch interface. Multitouch represents a fundamental shift in the way people interact with computers. An entirely new class of applications is about to be written for this technology, and we have the opportunity to get in at the ground floor. Multitouch is a rising market: The Android platform, iPhone, and iPad have established its commercial validity. Microsoft and Apple are introducing laptop and desktop versions of multitouch that will take over the market in the next couple of years. Widespread adoption is coming, and the killer application will be a catalyst for demand.

Target Market

The target market will largely consist of people who have tried to become musically talented, but have ultimately failed to express their creativity. Picture the teenager who wants to write a guitar song for his girlfriend and can't get over the learning curve. Or the avid techno fan who buys a sequencer but can't produce anything interesting or original. What about the college student who enrolls in a music theory course but doesn't get it? These individuals represent the core of our target market. Music writing requires two skills: the ability to translate music into notation, and the ability to understand the rules of music theory. A naïve songwriter can do neither of these without training, unless they have an alternative solution. With our technology, the guitarist gets the girl, the D.J. rocks the house, and the student becomes the master.

Distribution Support Systems

Advertising will be done through a partnership with Fortyseven Communications. Fortyseven Communications is the leading independent video game PR firm, to run a marketing campaign

and promote our software. They represent Warner Brothers, Sony, and Activision. We will use magazine and online advertising, product placement, and targeted reviews using proven strategies developed by Fortyseven Communications. 

Products

We will develop a line of products and service that will enable the creation, collaboration, and sharing of music. Our software provides this solution to music enthusiasts of all styles and skill levels, allowing them to quickly visualize music and control it with touch. We bypass the traditional pathways to music knowledge, and give the user a visual shortcut to musical composition. Our first product will be MusicShaper, which will be designed for the enthusiast to prosumer. MusicShaper is an iPad application that translates music theory into a notation of shape and color, allowing the user to easily and intuitively express themselves musically through touch interactions.

After MusicShaper we will develop MusicArchitect, which will be a fuller suite of software with more devices. From this we will develop specialized applications that utilize music plugin operation and sound design, orchestration and playback for live performance, and integrate visual performance with stage show. The culmination of these products will result in MusicCommunity, which will be a platform for online collaboration with Pentagram Music components.

Competitive Advantage

There are three key benefits and advantages to our technology. First, it makes music theory accessible as a visual language, to music enthusiasts. Next it allows user to architect songs with touch, and promote music as a form of communication that takes the form of shape, color and sound. Lastly, it makes music writing intuitive and fun, with immediate feedback for creative experimentation.

- Look and feel design by a leading industrial designer
- 3D and touch interface, analyzed, reviewed and produced by mechanical engineers
- Music theory ratified and analyzed by musicians with 15 years experience and a highly skilled percussion expert
- Musical geometry identified and enumerated by experts in mathematics

This is the right set of skills for the right domain and the combination of these skill sets presents a unique opportunity to capitalize on the market, with a high quality product.

Profit Model

We are selling software, which means our sales are highly scalable. Our costs are linear with our personnel burn rate, and unrelated to number of units sold. We will also spend a finite amount on a marketing campaign, which will generate a return on investment directly related to number of units sold.

Expansion Strategy

The company will produce a first product establishing our position in the marketplace as experts in the domain. The product is intended to be a unique and interesting, functional art form. If the first product is successful, a more capable product and a full scale marketing campaign will be initiated for a line of software. Business units will be established for each offering in the platform, and the company will be expanded to manage the demands of an emerging online community.

Financing Requirements



We will require a first round of investment of \$500,000 for the development of MusicShaper.

- \$50,000 marketing
- \$100,000 legal
- \$100,000 salary
- \$50,000 development tools
- \$50,000 overhead
- \$100,000 software development
- \$50,000 misc

MARKETING STRATEGIES

Market

The prosumer music software market may be compared to the market place for the Digital Audio Workstation (D.A.W.) However, most competitors are private companies, and protect their financial information so that total market size is difficult to estimate. Information that is available includes market capitalization for Avid corp. Avid owns Digidesign, M-Audio, Sibelius, Pinnacle, and Sundance Digital. The yearly market capitalization of Avid is \$500M per year. Additionally, Native Instruments, a company focused on the production of music plugins, is able to employ 180 people, indicating a yearly burn rate on staff alone, of \$18 million dollars/year.

An alternative method to understanding the marketplace to Pentagram Music is to examine the online music offerings or band hosting and services. For example, Bandcamp has a userbase of 490 artists/page by 148 pages, which equals approximately 72,500 bands. On their website, Bandcamp claims that in the last month, their artists sold \$500K worth of music. Taking a 10-15% cut of Sales, this site generates \$150K to \$225K a quarter, assuming consistent sales.

SoundCloud claimed 1 million subscribers in May 2010. Sales run on a tiered turnkey model, based on the amount of hosting needed. However, the firm offers a free basic tier, which is presumably what most of their subscribers use. MySpace claims it hosts 8 million artists' sites, many of which offer direct downloads of their music using SNOCAP.

Online radio stations have larger user bases. Last.fm has 40 million users. These are listeners, and not necessarily artists. However, this may indicate a good potential market for Pentagram

Music-last.fm users care more about music than the average user. Similarly as of March 2010, Pandora had 700,000 tracks in its library and 48 million users who listened for 11.6 hours per month on average. Grooveshark streams 50 to 60 million songs per month, to more than 17,000,000 users. As of April 2009, its audience was growing at a rate of 2-3% per day.

iPad sales are expected to exceed 10 million users by year-end. 91% of the owners of iPads bought software from the app store, and 45% of these users bought an iPad application. A 1% penetration of the iPad market would generate \$1.5-3M growing with the marketplace for MusicShaper, the first Pentagram Music product. Success for this product could be translated to additional sales for other Pentagram Music products, generating a projected market capitalization of \$20M per year.

Market Position

Competitor positioning is a key weakness for Musical DNA. Other contributors to the conceptual domain have failed to deliver compelling products at all. Musical DNA has entered the marketplace, with a live action instrument. Their concept lacks a compelling technique to program rhythms, and does not provide any midi output which could be used to drive more attractive musical sound devices.

In comparison, Pentagram Music has an edgy marketing narrative software platform that enables programming harmony and rhythm, and provides shortcuts explaining music theory that enhance the productivity of the individual user.

The prosumer client needs a system that helps them write music. Musical DNA requires the prosumer to understand how to deliver correctly formatted music on their own. Pentagram Music helps the user by doing the work for them.

Pricing Strategy

Pentagram Music will seek out high end position through higher prices for its software product line. The product strategy will combine cost plus and demand pricing. The software must be priced high enough to cover development costs, but must also respond to customer demand. Pentagram Music shall engage upon experimentation in small market segments in order to seek out resistance to pricing. Appropriate prices will be found when approximately 20% of the target market expresses resistance to price in focus group studies.

Distribution

The Pentagram Music platform will be distributed initially through placement in the Apple App Store. Follow up releases will add the Droid Marketplace. Direct sales will be made available through shopping cart functionality added to the PentagramMusic.com website. In addition, Pentagram Music may seek OEM bundling with certain partner firms. As market share of Pentagram Music products, the firm will also pursue retail placement of the software line.

Promotions Plan

Fortyseven Communications will be responsible for the promotions plan for the Pentagon Music platform. Fortyseven Communications has implemented a number of highly successful software marketing campaigns and events, such as the Game Developers Conference. Pentagon Music plans to leverage Fortyseven Communications proven channels for public relations and media interaction. Pentagon Music will place advertising through Fortyseven communications partner companies with bylines such as “Cast Musical Spells” or “The Magic of Music at your fingertips.” Pentagon Music may also drive entry into specific market segments by offering discount codes for software purchases.

Personal Sales

As Pentagon Music grows the company may be segmented into groups that specialize in the management of specific product lines. Each of these groups will have its own marketing and sales leads, responsible for growing the sales for each product. These salespeople will operate on commission, and implement specialized strategies for each offering.

Sales Potential

A 1% penetration of the iPad market would generate \$1.5-3M growing with the marketplace for MusicShaper, the first Pentagon Music product. Success for this product could be translated to additional sales for other Pentagon Music products, generating a projected market capitalization of \$20M per year.

COMPETITIVE ANALYSIS


Competitors


The main competitor in the marketplace is a small, new company called Musical DNA. Musical DNA have identified aspects of the geometry relating to musical intervals—the circular representation of the notes in the octave, and the description of the interval as a line between the notes, across the circle. They have also identified the existence of a tone spiral, as did Euler, in the 1600’s. There are a number of other experimenters and lone actors that have published elements of the theory in academic papers, on websites such as harmonisphere.com and spectratune.org.


Strengths

Musical DNA has two key strengths. One, they are the first into the multitouch market place, so they have prime mover advantage. Second, they have made a significant investment into a series of patents, 1 for the harmony representation, and another for a representation of rhythm. From these two patents, they have created a series of other patents for smaller claims that are derived from the first two.

Weaknesses

Because  the presence of a variety of online subject matter experts in the area, pre-existing patents from other individuals, and a “poor man’s patent” owned by CodeSource software in the area of musical geometry, Musical DNA’s patents are most likely indefensible, as they have attempted to patent elements that are common knowledge. The basic strengths of their legal position have been evaluated as poor by Alexandre Francois, professor of computer science and member of the Mathematical and Computation Music Society. The general opinion expressed was that the legal firm that prepared the patents had perhaps done a disservice to their client by filing indefensible material that is common knowledge to subject matter experts.


In addition, Musical DNA has not been well received in the community. Their Facebook, MySpace and Twitter pages indicate a general inactivity after their product was introduced, with mixed feedback. Reviews of their product indicate that it is buggy, locking up the sound on the iPhone, and hard to use. Essentially their offering is a live instrument that allows the user to play notes in a circle, winding up or down the music spiral. This prevents the user from playing certain sequences of notes, and requires them to understand both key and chord structure on their own. The users must understand the geometric interpretation on their own before using the tool, and must have dexterity in order to ‘play’ the application. Finally, the audio support of the application has the sound of an entry-level  keyboard using general midi sounds. This lacks the appeal required to attract the prosumer buyer.

Finally  Musical DNA has marketing that collides with the Pandora project concept of Music DNA. This confuses the prospective consumer and obfuscates the sales effort. Musical DNA appears to have focused their efforts primarily on legal positioning and not on marketing strategy. This leaves a broad opportunity for a competitor to enter the marketplace with second mover advantage: the second mover observes the mistakes of the prime mover, and adjusts their strategy to gain a dominant market position.

Opportunities

Musical DNA has reported an effort to license their technology. It may be possible to defer any legal battle through negotiations.

Threats

Should musical DNA be successful in selling their patents to a “Patent Troll” with a significant  legal group, their negotiating position may be strengthened significantly, and they may have the ability to capture a larger percentage of the market through legal maneuvers.

COMPETITIVE STRATEGY

Product


In order to avoid the pitfalls of Musical DNA, Pentagram Music will focus on marketing, and user experience. The prosumer target market has been carefully analyzed, and the productization of music shaper and follow on products are designed to engage the prosumer in ways Musical DNA does not. Pentagram Music shall create a line of user interfaces, evaluated by musician,

mechanical engineer, graphic designer, and software interface expert. These interfaces shall be designed to encode a process for songwriting that will allow the prosumer to create music easily and intuitively. The interface will support rhythm programming, a component overlooked by Musical DNA as a simply linear operation.

Distribution

Pentagram Music will place products prominently in the Apple App Store and Android marketplace. Additional software may be distributed through an online store associated with the company website. Additional sales may come through OEM bundling of software with other manufacturers.

Pricing

Pentagram Music products will establish a high-end market position by setting prices high for each of their products. The user will perceive the applications to be high quality and high capability because their value is expressed in the cost of the application. 

Promotion

The communications strategy for Pentagram Music leverages the mystic image of the pentagram. This takes advantage of the prominent placement of pentagrams in the musical geometry of the tool. This approach is edgy and should appeal to risk takers, rock and roll fans, and the youth market place. The slogan “Cast Musical Spells” succinctly describes the product benefit and forms a theme around which product communications may be focused.

Advertising

Pentagram Music shall utilize an advertising campaign using partner firms of Fortyseven communications. Fortyseven communications has a solid track record for new media and art technology promotions, and can reuse their established channels for product announcement and promotions.

DESIGN AND DEVELOPMENT PLAN

Product Development

Pentagram Music shall productize an excellent user experience. The first product, MusicShaper, will establish a market position that demonstrates this excellent user experience. If the company is successful in this endeavor, a second, higher end product—MusicArchitect—shall be launched. Music Architect shall provides professional support for composers. Follow on applications shall provide support for sound engineering, orchestrated performance, song writing, video and lighting system interface. Each of these platforms shall integrate with an online system for user collaboration and content sharing. Pentagram Music operations must be scaled up to address the growing scope of the software line.

Market Development

Pentagram Music is partnering with Fortyseven communications, in order to build a reputation for excellence and innovation in the prosumer marketplace. The initial product launch must establish the company as experts, in the mind of the user. Using a combination of mystic themes in the marketing campaign, and distribution of software that provides an excellent user experience, Pentagram Music seeks out a niche as the leaders in geometric music composition on multitouch platforms, with online collaboration and content sharing. With a sufficiently 'killer' application, demand for Pentagram Music products can help drive adoption of desktop multitouch applications, and adoption of desktop multitouch applications can drive adoption of Pentagram Music software products.

Organizational Development

Pentagram Music will **initial** be a skeleton operation relying on outsourced software development, outsourced marketing strategy, and a variety of outsourced supporting services. As the operation grows, Pentagram Music must be partitioned into support units for each software application. As the company reacts to the marketplace demands, organizational strategies may change. The company must remain focused on innovation and agile response to the needs to its customers. This must be facilitated by a set of corporate policies that encourage a culture which supports innovation.

Goals

The Pentagram Music Quest is the democratization of music theory. The company will establish itself as a leader in the niche of geometric music composition.

Procedures

Each product in the Pentagram Music Platform shall undergo extensive analysis and design. Each product shall be intended to offer labor saving innovations, visualization techniques that simplify complexities in the application domain, and touch interfaces that streamline and enhance user productivity. In order to support these benefits, the company will engage in agile development, rapid prototyping, graphical and industrial design, and product development in concert with market experts. The company shall engage in iterative development in order to maximize the quality of its offering.

Scheduling

MusicShaper shall be released 6 months after series A funding. Series A funding shall cover marketing and development costs for MusicShaper, and part of the development costs for MusicArchitect. Income from MusicShaper and Series B funding shall pay for development and marketing of MusicArchitect and some part of the development costs for the Pentagram Music platform. MusicArchitect shall be released the year after MusicShaper. Additional components shall be released based on scheduling that is reactive to customer needs and market reaction.

Budget

Pentagram Music budget will consist of the following:

- \$50,000 marketing campaign for MusicShaper
- \$500,000 marketing campaign for MusicArchitect and Pentagram Music Platform
- \$100,000 legal budget, intellectual property filings and strategy, defense.
- \$100,000 salary for all staff for first year, to expand as company income is demonstrated
- \$50,000 development tools—software licenses, product libraries, hardware
- \$50,000 overhead, office space, administration, utilities, etc.
- \$100,000 software development per year, to outsourcing provider.
- \$50,000 misc supplies, insurance, etc.

Personnel Strategy

Pentagram Music shall initially leverage outsourced software development and outsourced marketing. Staff shall be recruited from Harvey Mudd College, and the operations of the company shall remain skeletal, virtual, efficient, and lean. An interim CFO shall be utilized, who has previous experience working with CodeSource Software. Manpower requirements shall be gauged against the demands of the customer base, and the company shall react as needed.

Development Risks

Modes of failure for Pentagram Music include the following scenarios:

- Low production quality results in a buggy product that fails consistently and turns off the user base.
- Failure to understand the musical geometry effectively ruins the user experience and results in a substandard product.
- A patent troll picks up the musical DNA patent and engages in a legal war of attrition, due to substandard legal protection for Pentagram Music.
- An experience and creative competitor partners with Musical DNA and works to provide a competitive and compelling offering in the marketplace, reducing market share for MusicShaper and the Pentagram Music Platform. No signs indicate this is imminent. However, it is possible.
- Insufficient funds are acquired to launch a marketing campaign for MusicShaper, MusicArchitect, or the Pentagram Music Platform.
- Product complexity exceeds the production capabilities of the software organization.
- Market analysis misreads consumer trends.

OPERATIONS AND MANAGEMENT PLANS

Organizational Structure

Marketing and Sales will be handled by Fortyseven communications. The student code developers and professionals from CodeSource will handle production and quality of the product during the spring semester of Harvey Mudd College. Research and development will be handled

solely by the student code developers. The CEO Mark Strachan, interim CFO David Nimitz, and board member Sibel Sunar will handle administration.

Operational Expenses

The operational expenses for our product will include \$50,000 for advertising and promotions from our first round investment and \$500,000 for advertising and promotions from our second round investments. Supplies will total \$50,000 and payroll will be \$100,000 with a \$50,000 overhead for the development of MusicShaper. Professional services that need to be paid include lawyers, working with CodeSource, partnering with Fortyseven Communications, and insurance fees (~\$6,000).

Capital Requirements and Cost of Goods Sold

The required funding from first round investment is \$500,000 and the required funding from second round investment is \$4,000,000. The cost of goods sold will be minimal and unrelated to number of units sold.

FINANCIAL COMPONENTS

Spreadsheets included as separate documents submitted in email.



Pentagram Music
Product Revenue and Expense Summary
(US Dollars)

MusicShaper	2010	2011	2012	2013
Unit price	0.00	20.00	20.00	0.00
<Unit cost of manufacture>	0.00	0.00	0.00	0.00
<Unit cost of packaging>	0.00	0.00	0.00	0.00
<Unit cost of distribution>	0.00	6.00	6.00	0.00
<Unit other expenses>	0.00	0.00	0.00	0.00
Unit Gross Margin	0.00	14.00	14.00	0.00
Volume of sales (units sold)	1	150,000	75,000	1
<less returns>	0	0	0	0
Net Volume of Sales	1	150,000	75,000	1
Gross Sales	0	3,000,000	1,500,000	0
<Direct costs of Production>	0	900,000	450,000	0
Net Sales	0	2,100,000	1,050,000	0
<Direct product advertising/marketing>	0	50,000	25,000	0
<Direct service support>	0	0	0	0
<Other direct expense>	0	0	0	0
Net Product Profit	0	2,050,000	1,025,000	0
memo:				
Advertising/Marketing per unit	0.00	0.33	0.33	0.00
Service support per unit	0.00	0.00	0.00	0.00
Percentage returns	0.00%	0.00%	0.00%	0.00%

Notes: If the company sells more than 1 product, duplicate this page for each product. Make sure that transfers from additional pag statement are properly reflected. If the company sells a service rather than a product, use the page labeled Services R&E.

Memo: Apple takes a 30% commission off the top for all iPad app sales; sales volume is roughly 1% of p market. Marketing expenses are assumed to be \$50K to Fortyseven Communications, Inc.

Capitalization
(thousands)

	Number of shares	Price per share	Amount Raised	Percent of Total
First tier financing:	500.00	1.00	500.00	1.8%
Second tier financing:	2,000.00	2.00	4,000.00	14.0%
IPO financing:	2,400.00	10.00	24,000.00	84.1%
Founder financing:	7,100.00	0.01	50.00	0.2%
Other financing:	0.00	0.00	0.00	0.0%
Total:	12,000.00		\$28,550.00	100.0%

Memo: Founder's Original Contribution
(thousands)

	Amount Contributed
Mark	50.00
Founder B	0.00
Founder C	0.00
Founder D	0.00
Founder E	0.00
Founder F	0.00
Total:	50.00

Hemlock Software

Business Plan

December 2010

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Executive Summary

RealAssist is an exciting new software package that will bring numerous benefits to the real estate market. With RealAssist, realtors are able to convert a collection of pictures or video to a three-dimensional model of a home. This model can be easily integrated into an existing website, providing potential homebuyers with a high-quality and intuitively navigable tour in the comfort of their own home.

For a price lower than that of hiring a professional photographer for a day, RealAssist allows a realtor to continually provide their customers with a dynamic and informative representation of a home. RealAssist is able to generate models from a wide range of input image qualities and is unaffected by irregularities in camera orientation and position. Realtors are thus able to capture the images necessary to create the models without needing to buy additional expensive equipment.

The addition of a digital model to the portfolio of information available about a home on the market allows consumers to make more informed decisions about their commitment of purchasing a home. Additionally consumers are able to discover homes that they might have otherwise overlooked. With these two benefits delivered directly to the consumer, a realtor can make more efficient use of their time by scheduling more in-person tours with the homebuyers most likely to agree to a final purchase.

Current products that attempt to provide digital tours are limited by several key drawbacks. Outdated image processing algorithms require static camera position and consistent camera location and often introduce an unattractive and unrealistic fish-eye effect. Additionally, unintuitive navigation interfaces and fixed viewing locations within a room limit potential homebuyers' spatial perception of a home in which they may be interested. RealAssist solves these issues by creating a wireframe 3D model.

The benefits of generating a wireframe model of a home are numerous and substantial. The most immediate of these benefits manifests in additional features such as dynamic lighting, placement of digital furniture, and alterations to the home itself, such as retexturing surfaces, or adding custom structural additions.

With the additional features that will be developed in future versions of the product, RealAssist can enter into additional markets such as furniture sales, home remodeling and interior design. In this way, the new innovations can be made available to an increasing number of customers in a broader range of applications.

BACKGROUND AND PURPOSE

Hemlock Software is currently a small software company focused on developing innovative image processing solutions and delivering full-featured solutions to the real estate market. There is a need in the real estate market for more tactile virtual tours of homes across the country. Presently, no solution fully enhances the homebuying experience with the convenience of the internet.

As traditional retailers move towards online sales, it becomes evident that consumers appreciate the convenience of remotely perusing products. In a market such as real estate, the current innovations driving the increasing digitization are not sufficient. A novel solution is required to bring the advantages realized in online retail markets to the real estate market.

Much like a car buyer would never consider buying a car before sitting in the driver's seat and taking a test drive, a home buyer would never consider buying a home without becoming more familiar with the look and feel of the rooms. RealAssist captures this experience for a homebuyer so that they may more easily find their dream home.

As RealAssist directly benefits homebuyers, realtors will witness a more streamlined homebuying process. Homebuyers will be more committed to purchasing homes that they have already experienced when they arrive for an in-person tour. Realtors will be able to more effectively schedule their time to meet with only the most interested buyers. Realtors will benefit from faster home sales and will see increased profitability.

At Hemlock, we seek to deliver a more immersive experience for a homebuyer that will revolutionize and benefit the entire real estate industry.

Management Team

Hemlock Software management team is comprised of talented individuals with a variety of experience in the software development industry. The current CEO of Hemlock Software is Steven Berry who has participated in numerous software development projects as both a developer and a project manager. Our CFO, Brendan Smith, has an extensive background in economics and finance. He has worked with small software companies in the past and is well-equipped to manage the finances of our company. Our Vice President of Sales and Marketing, Dannielle Shiomoto, has participated in developing the marketing direction of several similarly-sized start-up businesses. There are currently two CTOs who direct different aspects of our product development. Russell Melick has had substantial experience with web development and directs the development of the user interface components along with the presentation and deployment. Christopher Sauro has had extensive experience with image processing and directs the research and development for our image processing algorithms. Both of Hemlock's CTOs direct the continual implementation of new product features.

Since the present management staff has experience with smaller companies, we will assemble a veteran management team after the fourth year of business as the company becomes larger. At that time, the current management staff will take on more technical roles in the company and will be more actively involved in future product development.

Description of Market

Our primary target market consists of the estimated one million licensed real estate agents currently active in the United States. These real estate agents are trying to increase the visibility and improve the quality of presentation of their properties. The initial version of RealAssist has been specifically designed for these users, but the manageability of the interface and the low hardware costs extend the applicability of the product to numerous other markets, including venue operations, interior design, and furniture retail. Anyone owning a camera and a computer is a potential customer and will be able to easily explore the worlds created with RealAssist and its successors.

PRODUCTS AND SERVICES

RealAssist has two components: the application used by a realtor to generate the 3D tour, and the website component, called the Homebuyer Experience, that enables potential homebuyers to tour the house.

Realtor Application

A realtor will use the RealAssist software application to generate high quality 3D models of homes they have placed on the market. Model generation begins with the realtor capturing panoramic images of every room within the house. The easiest and recommended capture method is to take a high-quality video camera through the house, but RealAssist also supports the use of a still camera. Once the images have been captured, the realtor uploads them to their computer, and our software stitches them together into a seamless 3D model of the house and furniture. It is also possible for the realtor to upload a digital floor plan to their computer and synchronize it to the tour by matching several of the rooms with their panoramas.

During the photo stitching process, RealAssist detects any problems with the captured images. This includes common problems such as poor focus, inadequate lighting, and unphotographed locations such as areas behind furniture. The software will then direct the realtor to the areas of the house which need to be re-imaged to ensure an optimal model.

Finally, RealAssist generates the web content necessary for the realtor to integrate the 3D tour into their existing website. There will be a single file containing the necessary models and textures to render the house, as well a piece of HTML code that can easily be added to the desired webpage.

Homebuyer Experience

The Homebuyer Experience of RealAssist is designed to present the property so effectively that the homebuyer feels as if they are physically walking through the house.

The web interface is reminiscent of a videogame and allows the homebuyer to navigate to any portion of the house. Full lateral movement throughout the house is controlled by the keyboard and complete control of the viewing direction is controlled by mouse. A full-screen display of the tour is available to more deeply immerse the homebuyer into the experience.

The first way RealAssist achieves a sense of physical presence is by giving the homebuyer context within the home when they are viewing a room with an intuitive interface. By subtly integrating the floor plan onto the viewing screen, the Homebuyer Experience enables the user to quickly determine where in the house they are located and in which direction they are facing. Additionally, instead of having to click buttons or select from a menu to view a different room, the user is able to simply walk through a doorway.

The second way RealAssist achieves physical presence is through the ability to navigate absolutely anywhere within the house and examine any object in detail. By using a high quality 3D model and an intuitive navigation system, RealAssist makes it easy for a homebuyer to place themselves anywhere within the house. Once there, a user can adjust the view however they desire, mimicking the capabilities of real life and remotely immersing themselves in a home.

Defensibility and Intellectual Property

The fundamental technology behind RealAssist is a more advanced and flexible adaptation freely available university research. Our intellectual property is almost entirely source code and is protected under common copyright law.

A more significant risk to the success of our company is other solutions delivered to the market that achieve similar results. Instead of devoting resources towards fighting legal battles to protect our intellectual property and market share, we will be concentrating our efforts on developing new features that differentiate our product from that of the inevitable competitor. Since the success of our company does not depend on the originally idea being completely secured, we will have the edge on the market we build without needlessly wasting resources?

DISTRIBUTION AND MARKETING

Company and Product Website

We will distribute RealAssist on our company website, which will also automate most payments from customers. A realtor who purchases RealAssist will have two options for delivery: immediately downloading and installing the program, or paying a small fee to have the program delivered by mail on a DVD. The site will also handle discount pricing for large orders, but more complex contracts will require speaking with a trained salesperson.

Marketing Efforts

The efforts of our sales and marketing team will drive the sales of the RealAssist software package. Initially, the sales plan for our software will be specifically aimed at the real estate industry and the segmented structure of this target market is the foundation of our three-tiered strategy:

At the first level, there are thousands of independent real estate agents to whom we offer our standard software at an individual price of \$300 per copy.

At the next level, there are thousands of regional real estate franchises and brokerage offices; each employing a handful of agents. To these buyers, we offer a licensed version of the package at a price of \$150 per user.

Finally, at the top, there are several national real estate firms—Century21, RE/MAX, Prudential, et cetera—to whom we offer contracted use of the RealAssist software at a volume-discounted, negotiable price. For example, Century21 represents approximately 100,000 real estate agents nationwide. A \$5 million contract with Hemlock Software would allow all 100,000 Century21 agents use of RealAssist at a price of around \$50 per user.

To launch RealAssist into the real estate market, we are offering individual agents in the San Francisco, Los Angeles and Orange County regions a discounted pilot version of the software package. This opens the door for us to pursue a more aggressive sales approach in which we directly cite the success of the pilot in these regions. We will then expand sales and sell the product at full-price to agents in surrounding regions. Once we have established the initial user base, we will be in a position to move the product nationally. We will leverage the success in lower levels to negotiate contracts with larger firms.

With the above sales strategy, we project that we will have 10,200 individual users after four years, accounting for \$3.1 million in revenues.

Our marketing plan revolves around highlighting the following three benefits RealAssist provides realtors:

- Powerful technology
- Intuitive use and website integration
- Substantial monetary benefits

In the first two years, we plan to use a direct marketing-to-sale strategy to launch the product and increase its visibility in the market. Pilot, first-, and second-tier sales will be handled by an initial team of four through direct contact (sales calls, in-office demonstrations, etc.) with customers focused on the explicated attributes. Top-tier sales and marketing will begin in the second year and is to be handled by an added team of three through focused and continued discourse with national real estate firms, aiming for one \$5 million contracts per year (including re-contracts and updates).

In the fourth year, projected revenues are great enough to allow the launch of a \$250,000 advertising campaign in which we utilize media channels to promote our product and extend its use into other markets. Television commercials, print advertisements in magazines such as *Interior Design* and *Home & Design*, and demonstrations at trade shows will increase product visibility and sales.

COMPETITION AND RISKS

We currently have no direct competitors providing the same level of functionality as RealAssist. There are a number of companies that provide packages to create 3D panorama tours and 3D floor plans, such

as Real Tour Vision and 3DVista. However, these solutions do not integrate the tours and models into a coherent presentation. The photo panoramas can only be viewed from fixed, pre-determined angles and suffer from both the fisheye effect and cumbersome controls. The 3D floor plans exhibit the layout of the house but are unable to provide a realistic representation since they are not created from photos. The tools to create these floor plans are also unintuitive and difficult to use. RealAssist solves all of these issues by automatically generating a full model from photographs.

Microsoft and Adobe are exploring research in transforming 2D images into 3D. Microsoft has already created proofs-of-concept in conjunction with the University of Washington that can create a 3D model from a collection of 2D images. However, this research is Open, meaning we face no patent dangers, and neither Microsoft nor Adobe are looking toward the real estate market. Even though these companies may release tools to create 3D models, RealAssist remains differentiated by its end-to-end ease-of-use and additional tools tailored for the real estate market.

FINANCIAL INFORMATION

After the success of the pilot version, we will begin selling RealAssist in its second year. Each member of the four-person sales team will make at least sixteen sales of the individual product and two sales of the branch license every month. With these sales targets, the second-year revenue will be \$381,000. In year three, the sales team will expand to seven members, and we expect the sales to double to \$780,000. We expect \$375,000 in additional sales as a result of advertising, for a total third-year revenue of \$1.14 million. In the fourth year, the sales team will expand to ten members. As RealAssist achieves a strong reputation in the real estate community and sales become easier, sales made by the sales team will triple to \$2.3 million and advertising will double to \$750,000. In this year we will sell a license to a national agency for \$5 million, yielding a total fourth-year revenue of \$8.0 million.

We will begin with 11 employees: its CEO, CFO, a VP of Sales and Marketing, a CTO and three software engineers working on the modeling algorithms, and a second CTO and three software engineers working on the software package. Each employee will be paid a \$50,000 annual salary in the first year. An annual cost of \$65,000 will be needed for building rental and utilities and an annual \$25,000 will be required for legal expenses. An upfront cost of \$50,000 will cover computing resources. The total expense for the first year will be \$600,000. In year two, we will hire two more software engineers and three sales representatives and provide our continuing employees a \$10,000 annual salary raise to encourage retention. In year two, expenses will exceed revenue by \$636,000. In year three, we will begin a marketing campaign that will cost \$100,000 annually and our expenses will exceed revenue by \$464,000. In year four, with growing sales due to marketing and a sale to a national agency, revenue will exceed expenses by \$5.5 million, and the following year that figure will increase to \$7.7 million.

FUTURE PLANS

While the immediate benefits of RealAssist are numerous, the fundamental technology on which it is based provides a wide avenue for improvement and market expansion. A 3D model of a room offers

technological flexibility that a perspective-oriented image panorama cannot. Direct modification of the 3D model and of the textures mapped to it invite a wide array of applications.

After the initial product reaches market we will expand the feature set, both to enrich usability within the real estate market and to reach further markets. The first of these features is the ability to dynamically change the lighting inside the model house. Our software will render the model in different lighting conditions so that a homebuyer will be able to view the house at the different times of day and the different seasons that the realtor makes available.

Secondly, we will add the ability to remodel and redecorate the model home. We will utilize the wireframe model to move and remove furniture and restructure the house. The user of the Homebuyer Experience will be able to take pictures of their own furniture and add them to the model. Partnerships with companies like Ikea will give homebuyers access to a large catalogue of furniture that they can easily add to rooms. We will also enable homebuyers to change surfaces, such as floors, walls, and countertops.

Additional features like these will be continually developed to provide an expanding and more feature-rich product. RealAssist's success in the real estate market marks only the beginning of a larger suite of software tailored for additional markets such as furniture sales, interior design, and home remodeling. These future markets have been chosen based on the ease of adapting the RealAssist technology to their needs. This will push our software solutions similar to the pioneering RealAssist into the hands of retailers, service companies, and consumers alike.

CONCLUSION

With RealAssist, Hemlock Software will be able to solve a persistent problem in the real estate market that has been thus far insufficiently addressed. The benefits of the technology provided by RealAssist will be immediately realized by the real estate market. Realtors will have access to a powerful tool that will help better represent and market the properties they are offering and that will give them a distinct competitive edge. What is now viewed as supplemental information in a real estate agent's portfolio will become an asset that will save money, facilitate efficient use of time, and increase the turnover sale rate of properties and the internet traffic through realty websites.

Success in the real estate market will allow Hemlock Software to pursue other markets by expanding on the fundamental technology provided by RealAssist. Such expansion will continue Hemlock Software's tradition of delivering powerful, feature-rich, and business-enhancing software to markets in need of improvement and innovation.

Hemlock Software					
Product Revenue and Expense Summary					
Dollars					
Real Assist Individual License	2011	2012	2013	2014	2015
Unit price	300.00	300.00	300.00	300.00	300.00
<Unit cost of manufacture>	0.00	0.00	0.00	0.00	0.00
<Unit cost of packaging>	5.00	5.00	5.00	5.00	5.00
<Unit cost of distribution>	5.00	5.00	5.00	5.00	5.00
<Unit other expenses>	0.00	0.00	0.00	0.00	0.00
Unit Gross Margin	290.00	290.00	290.00	290.00	290.00
Volume of sales (units sold)	0	800	2,600	6,800	12,000
<less returns>	0	20	40	80	125
Net Volume of Sales	0	780	2,560	6,720	11,875
Gross Sales	0	234,000	768,000	2,016,000	3,562,500
<Direct costs of Production>	0	7,800	25,600	67,200	118,750
Net Sales	0	226,200	742,400	1,948,800	3,443,750
<Direct product advertising/marketing>	0	0	100,000	100,000	100,000
<Direct service support>	0	0	50,000	50,000	50,000
<Other direct expense>	0	0	0	0	0
Net Product Profit	0	226,200	592,400	1,798,800	3,293,750
memo:					
Advertising/Marketing per unit	0.00	10.00	39.06	14.88	8.42
Service support per unit	0.00	0.00	19.53	7.44	4.21
Percentage returns	0.00%	2.50%	1.54%	1.18%	1.04%

Hemlock Software					
Product Revenue and Expense Summary					
Dollars					
Real Assist Branch License	2011	2012	2013	2014	2015
Unit price	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00
<Unit cost of manufacture>	0.00	0.00	0.00	0.00	0.00
<Unit cost of packaging>	5.00	5.00	5.00	5.00	5.00
<Unit cost of distribution>	5.00	5.00	5.00	5.00	5.00
<Unit other expenses>	0.00	0.00	0.00	0.00	0.00
Unit Gross Margin	1,490.00	1,490.00	1,490.00	1,490.00	1,490.00
Volume of sales (units sold)	0	100	250	700	1,200
<less returns>	0	2	5	5	8
Net Volume of Sales	0	98	245	695	1,192
Gross Sales	0	147,000	367,500	1,042,500	1,788,000
<Direct costs of Production>	0	980	2,450	6,950	11,920
Net Sales	0	146,020	365,050	1,035,550	1,776,080
<Direct product advertising/marketing>	0	0	0	0	0
<Direct service support>	0	50,000	50,000	50,000	50,000
<Other direct expense>	0	0	0	0	0
Net Product Profit	0	96,020	315,050	985,550	1,726,080
memo:					
Advertising/Marketing per unit	0.00	10.00	0.00	0.00	0.00
Service support per unit	0.00	0.00	204.08	71.94	41.95
Percentage returns	0.00%	2.00%	2.00%	0.71%	0.67%

Hemlock Software					
Product Revenue and Expense Summary					
Dollars					
Real Assist Agency License	2011	2012	2013	2014	2015
Unit price	5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00
<Unit cost of manufacture>	0.00	0.00	0.00	0.00	0.00
<Unit cost of packaging>	5.00	5.00	5.00	5.00	5.00
<Unit cost of distribution>	5.00	5.00	5.00	5.00	5.00
<Unit other expenses>	0.00	0.00	0.00	0.00	0.00
Unit Gross Margin	4,999,990.00	4,999,990.00	4,999,990.00	4,999,990.00	4,999,990.00
Volume of sales (units sold)	0	0	0	1	1
<less returns>	0	0	0	0	0
Net Volume of Sales	0	0	0	1	1
Gross Sales	0	0	0	5,000,000	5,000,000
<Direct costs of Production>	0	0	0	10	10
Net Sales	0	0	0	4,999,990	4,999,990
<Direct product advertising/marketing>	0	0	0	0	0
<Direct service support>	0	0	0	100,000	100,000
<Other direct expense>	0	0	0	0	0
Net Product Profit	0	0	0	4,899,990	4,899,990
memo:					
Advertising/Marketing per unit	0.00	0.00	0.00	0.00	0.00
Service support per unit	0.00	0.00	0.00	100,000.00	100,000.00
Percentage returns	0.00%	0.00%	0.00%	0.00%	0.00%

Hemlock Software					
Indirect Expenses and Outlays					
(dollars)					
NEC: Not elsewhere classified.					
	2011	2012	2013	2014	2015
Capital Purchases					
Buildings	50,000	50,000	50,000	50,000	50,000
Vehicles	5,000	5,500	1,500	1,500	1,500
Computing equipment	26,000	18,000	2,000	4,000	4,000
Other	0	0	0	0	0
Prior Net Fixed Assets	0	68,850	120,998	148,323	173,249
Depreciation expense	12,150	21,353	26,175	30,573	34,312
Debt Service					
Long term debt	0	0	0	0	0
Short term debt	0	0	0	0	0
Interest expense	0	0	0	0	0
Leases					
Vehicle leases	0	0	0	0	0
Computer leases	0	0	0	0	0
Other leases	0	0	0	0	0
Total lease expenses	0	0	0	0	0
Recurring expenses NEC					
Research and Development	0	0	0	0	0
Advertising NEC	0	0	0	0	0
Consulting fees NEC	0	0	0	0	0
Legal fees	25,000	25,000	25,000	25,000	25,000
Tax accounting fees	5,000	5,000	5,000	5,000	5,000
Office rental	0	0	0	0	0
Telephone	1,000	1,000	1,000	1,000	1,000
Travel	0	0	8,000	10,000	10,000
Internet	1,000	1,000	1,000	1,000	1,000
Utilities	5,000	5,000	5,000	5,000	5,000
Computing NEC	0	0	0	0	0
Other recurring	0	0	0	0	0
Total recurring expenses	37,000	37,000	45,000	47,000	47,000
Labor expenses NEC					
General office	550,000	930,000	1,330,000	2,200,000	2,220,000
Bookkeeping	0	20,000	20,000	20,000	20,000
Other labor	0	0	0	0	0
Total labor expenses NEC	550,000	950,000	1,350,000	2,220,000	2,240,000

Hemlock Software Projected Income Statement Dollars					
	2011	2012	2013	2014	2015
Sales (Goods)	0	381,000	1,135,500	8,058,500	10,350,500
Service Revenues					
Other Sales/Revenues NEC					
Net Sales	0	381,000	1,135,500	8,058,500	10,350,500
Direct Costs (CGS)	0	8,780	28,050	74,160	130,680
Service Expenses (direct)					
Gross Profit	0	372,220	1,107,450	7,984,340	10,219,820
Advertising/Marketing Expense	0	0	100,000	100,000	100,000
Service and Other Support	0	0	50,000	50,000	50,000
GA Expense	587,000	987,000	1,395,000	2,267,000	2,287,000
Depreciation	12,150	21,353	26,175	30,573	34,312
Research & Development Expense	0	0	0	0	0
Lease Expenses	0	0	0	0	0
Other Operating Expense					
Total Operating Expenses	599,150	1,008,353	1,571,175	2,447,573	2,471,312
Operating Earnings (EBIT)	-599,150	-636,133	-463,725	5,536,767	7,748,508
Interest Income					
Interest Expense	0	0	0	0	0
Earnings before Taxes (EBT)	-599,150	-636,133	-463,725	5,536,767	7,748,508
Taxes	0	0	0	0	0
Net Earnings	-599,150	-636,133	-463,725	5,536,767	7,748,508

XUN SOLUTIONS[®]

BUSINESS PLAN 
DECEMBER 2010

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EXECUTIVE SUMMARY

At Xun Solutions, we seek to provide premier educational tools with a focus on online learning. The e-learning industry is estimated at \$56 billion, with a few large players offering software solutions to established educational institutions and corporations. In other words, the only consumer access to e-learning products is through one of these restricted entities, such as colleges that offer online courses or training programs associated with one's employer. Currently, there are very few sites that offer both hosted content and a learning platform to anyone wanting access to online education. This represents a new market with no established leader, and Xun Solutions aims to capitalize on this opportunity to become the dominant leader in online learning through its exciting web application, Learnstream.

Learnstream is a web-based learning platform that offers several key features to improve learning over current online study solutions, giving us reason to believe it will become the primary online destination for independent learners. As it stands, the internet contains a vast amount of information but there is currently no systematic way to go about studying and learning that material. Learnstream leverages this content, both in the form of premium courses offered by our partners and in the form of freely available "open courseware," to offer an enhanced, interactive learning environment for life-long students.

Educational content on the Learnstream platform is presented within a sophisticated but friendly user interface. Typical content will include video lectures and text-based notes that are displayed in sync with the video. Adding content and syncing notes is easy for the course creator, and students can easily enroll in any number of courses to access this content.

The unique draw of Learnstream, beyond its intuitive interface and quality educational content, is the highly effective study tools demonstrated to boost understanding and retention. The substantial value added by these study tools is where Learnstream truly differentiates itself from content-only companies. Learnstream employs a psychologically-proven method to determine when core concepts should be studied for optimal learning, and provides easy links back to the original text and video for further clarification. Users will be encouraged to return to the site daily to keep up with their automatically scheduled reviews and learn new material. Since the study tools ensure that students only spend their time reviewing concepts that are difficult or likely to be forgotten, we believe the site will be particularly appealing to independent learners with time constraints.

Learnstream is an ideal tool for learners functioning outside of the formal education system and is applicable to learning a wide variety of skills. While there is no limit to what can be taught on the Learnstream platform, we will initially target high-demand subjects such as SAT/ACT/GRE test preparation, computer skills, and foreign language learning.

As with other companies that cater to independent learners, students would pay for premium content offered by our partners. The diverse course offerings will be delivered to the user in a way analogous to the iPhone App Store. This model allows third-party content providers, such as existing educational companies and websites, universities, and independent educators, to offer their content on the Learnstream platform. Prospective students will be able to browse the courses, read a summary of the content, and view ratings of the course from other users. If they choose to purchase the course, users will pay the amount set by the third-party content provider and Learnstream will take a percentage of the sale price. This model has seen astounding success in the context of the iOS development platform, in part due to the freedom it offers content providers in setting their own price. Xun Solutions will function as a facilitator to help these educators disseminate and market their courses to a wider audience, while at the same time providing enhanced tools for students to learn the course material.

In the first year, we expect to partner with several large content providers and additionally attract many smaller educators to adopt Learnstream as their content distribution source. The exposure provided by Learnstream will strategically position Xun Solutions as a trusted technology provider for brick and mortar institutions transitioning to web-hosted content as well as new online educational offerings in the next several years.

BACKGROUND AND PURPOSE OF VENTURE

Xun Solutions is a company started by students at Harvey Mudd College, an institution known for its emphasis on high-quality teaching and learning. The founding team is driven by a passion for learning, and our vision is to apply modern technology in creative ways to enhance the method for education and personal development. With an increasing demand for education in modern society, Xun Solutions seeks to provide logistically favorable means of satisfying the intellectual curiosity of society. By making all forms of education more accessible to the general public Xun Solutions will change how people view the attainment of knowledge and skill sets.

MANAGEMENT TEAM

Xun Solutions is comprised of a small team of driven members with a strong technical background. CEO Nicole Crisosto has considerable experience in pure research operations and has been involved in an additional web-based start up. Product design and technical development is led by our CTO Ryan Muller, who has several years of experience in programming, web development, and education technology. He will continue to have an active role in the development of the Learnstream platform. Erin Partlan, our CFO, handles the company finances and has extensive background in both mathematics and economics. Our Sales & Marketing efforts are headed by Neal Pimenti and Jeffrey Burkert. Neal has extensive experience in education and will continue to serve as an ambassador to our advises in academia and to companies and private educators to facilitate content acquisition. With a unique perspective from poker, Jeffrey has developed and continues to foster methods of product sales. As the company continues to grow, additional management personnel will be sought.

PRODUCTS AND SERVICES

Learnstream will begin as a web application that can be accessed through our website, Learnstream.org, which centrally hosts the application and educational content. We will also provide applications on mobile devices (such as the iPhone, iPad, and Android) and social media sites to lower the barriers in accessing content. Additionally, taking advantage of social networking sites will provide interesting avenues for marketing.

Content is organized into courses. Each course has an activity feed that displays content updates and questions from the course members. Courses consist of many documents containing text and videos. Learnstream features synchronization between the text notes and video, so the document scrolls according to the time of the video. The user can also scroll through the document and select a segment to play.

Content providers will also provide study cards that are automatically managed by the Learnstream system. When the user encounters a new concept, they can add the instructor's cards to the review scheduling system. They also have the option to create their own cards.

While studying, the student can review the context of a particular concept in the notes by replaying the corresponding part of the video. The synergy between textual notes and video offers an extra dimension to one's ability to review material presented in a video lecture, as confusing or fast-paced explanations can be watched and read multiple times until the concept is fully understood. We envision a core set of notes synced to the instructor's video, with the additional capability for students to add their own notes, thoughts, and questions on top of the course material.

SPACED REPETITION

Research into the learning process has long established the principle that students retain material better when it is reviewed several times over a longer period than when it is reviewed in a "massed study" over a short period of time. Roughly speaking, when reviews are spaced out over longer intervals, we force our brain to recall and sometimes relearn a concept during the review. In doing so, the concept becomes reinforced more strongly in our memory and we are less likely to forget it in the future. However, when faced with a large amount of material, it is difficult to know the optimal review time for each particular item. Spaced repetition algorithms like the one built into Learnstream are designed to manage one's understanding of some set of material and force the student to review concepts just as they start to slip from memory. Additionally, the contextual syncing between study review cards and the original material provides an easy way for students to view the original content if they are confused.

INCREMENTAL LEARNING

When presented with a long text or video lecture, a user may not be able or willing to read and/or watch it entirely in one sitting. Incremental learning allows the student to save their location in a lecture or video, and when they return later they are presented with a set of concept questions to help recall the context of the argument where they left off. This has two benefits: first, it allows the student to pick up seamlessly after a break, but secondly and perhaps more importantly it reinforces the material they have already learned. Pedagogically, dividing readings into segments with small breaks in between promotes comprehension and minimizes fatigue. This feature is also extremely appealing to people who may be working with limited time resources.

STUDENT ANALYTICS

Students who actively maintain their Learnstream study programs will establish both *recall-likeliness* and *item-difficulty* estimates for each learned item. Instructors can use this information to assess which concepts may need to be further reviewed in another lecture, and how much their students are struggling with specific parts of the material. Although we claim to enhance the ability of a student to study, there's no substitute for an instructor's insight in providing clarity or meaning to individual items. We think that instructors will be able to use the system as a diagnostic tool to help figure out where their attention is best spent in improving the course. Our model currently supports both recall-likeliness and item-difficulty outputs, but it will require continued research to improve our ability to assess and apply this information. Ultimately, this feature can develop into additional premium content offerings where instructors provide personalized feedback to students.

SOCIAL FEATURES

In addition to the active learning facilitated by the spaced review system, Learnstream also improves engagement and interaction on the site through social features. Students are able to pose questions to a "help feed," tag specific problems or sections of the course material with questions, and communicate with each other for group studying. Instructors can also use the site to directly answer student questions. We will use Facebook as an inspiration for an interface that students are familiar with and want to use.

TECHNOLOGY

The site back-end is programmed in Python using the Django web framework and a PostgreSQL database to store course documents and information about user study. Video content is served through our web host using HTML5 video. Video syncing and study tool mechanics are performed with Javascript.

REVENUE AND MARKETING MODEL

Learnstream will be marketed to users on a centralized website that delivers content through a model similar to the iPhone app store. Users will be able to browse courses provided by third-party content providers and view information such as course reviews and ratings. If a user decides to purchase a course, they will be given access to the content through the Learnstream platform. Xun Solutions will take a 25% commission off of each sale and the rest will go to the third party content provider. Like the iPhone app store, we will allow the content providers to set their own prices. For example, The Teaching Company currently sells DVDs consisting of twenty-four half-hour lectures for \$250, or approximately \$10 per half-hour video. We expect most Learnstream courses to be priced in that range, though there will likely be significant variation depending on length and perceived quality of a course.

COURSES AND CONTENT

The versatility of Learnstream's platform allows us to target a wide array of course offerings and potential learning markets. However, we plan to focus initially on two key market areas: job skill training with a particular emphasis on skills for freelance workers, and test preparation courses for standardized tests like the SAT/ACT, GRE, MCAT, and LSAT. Future market directions, however, include marketing Learnstream directly to businesses for employee training and to institutions of higher education to both supplement their brick and mortar operations and enhance their online offerings.

JOB SKILL TRAINING

In the evolving workforce, there are always people looking to either retrain themselves to be more competitive or to learn new skills that will help them in their current job capacity. This is particularly true today in a down economy. From an employer's perspective, there is an increasing demand for workers trained in several high-tech skills such as programming and software development. This market need has been realized by many companies that provide online training courses catered to these 21st century job skills. Xun Solutions aims to target these companies with Learnstream, offering them a wider distribution network in addition to our study tools which enhance the learning experience.

One such company, Lynda.com, offers over 900 courses (with over 40,000 training videos) on subjects ranging from web design to programming languages to CAD software to digital video and photo editing. They receive over 20 million visitors to their site each year. Course authors/instructors are paid to create content, and receive royalties based on the popularity of their courses. Their user base includes students, adults in the workforce trying to learn a new skill for job promotion, and companies such as Time Warner and Patagonia that want to keep their employees on the forefront of design applications.

In addition to Lynda.com, there are an enormous number of tutorial videos available online, representing both free and premium content, that target a similar freelance or life-learner market. Xun Solutions plans to aggressively advertise the Learnstream platform to the experts currently producing these tutorials, giving them a centralized distribution platform which both enhances the quality and reach of their material. We will solicit content from independent instructors, and plan to offer at least 250 free and premium courses at launch.

TEST PREPARATION

The recent increase in college competitiveness has created a corresponding increase in the number of parents and students seeking SAT/ACT prep courses. The test preparation industry is estimated at \$4 billion dollars. One test-prep company, Kaplan, charges between \$500 and \$1,300 for offline SAT prep classes. Another, Princeton Review, offers a variety of online SAT, ACT, and GRE prep courses priced at around \$300. A third, AllPencilsDown, offers online classes at \$250. None of these content providers, however, offer the complete suite of study tools provided by Learnstream. We will seek partnerships with Kaplan and Princeton Review, the dominant players in the test-prep industry, to offer content on our platform. In addition, we are currently pursuing contacts at AllPencilsDown to offer their test preparation courses on our platform.

Ultimately, the advantage Learnstream has over any individual content provider is twofold. First, we offer novel tools on our study platform that greatly enhance the learning

experience, this is not being done anywhere else in a way that is comparable to the extent and integration featured by Learnstream. But second and perhaps more importantly, by aggregating content from across the web we provide a single destination for learners. This boosts the exposure of smaller, independent content providers and also allows us to expand to other more specialized markets. Some examples might include people wanting to learn to play poker (where content could be provided in partnership with sites such as CardRunners and Deuces Cracked), pick up a new hobby, or learn any other skills. The flexibility of Learnstream paired with the diversity of interests on the web means a potentially large and expanding market for content offered on our system. And the centralized location for this content allows learners to rate, preview, and buy the best courses available anywhere online without having to painstakingly search across multiple sites. With Learnstream, Xun Solutions aims to lower the barriers for independent learners to access content and provide a trusted name in online education.

DISTRIBUTION AND MARKETING

Learnstream is a tool initially targeted at the lifelong learner who may not have access to the resources of a formal educational institution. While traditional academic subjects can be delivered through the Learnstream interface, the most promising starting applications of the technology are in subjects typically learned outside the confines of academia. Examples include standardized exam preparation, foreign language learning, and computer skill development. The test preparation market alone is estimated to be at \$4 billion. Even a niche market such as the online poker education industry generates revenues in the \$10 million range. There is clearly a very large market selling to independent and Learnstream is poised

For Learnstream to be a truly effective learning platform, it is important that we offer a wide array of courses at launch. This way, it will be possible for users to organize a potentially diverse set of learning needs on a single centralized platform. Thus, it is important to the viability of Learnstream to form lasting content partnerships with existing educational content providers in a variety of fields. This will not only allow Learnstream to offer a variety of content, but will allow us to leverage the advertising networks of these content providers to publicize Learnstream. In these partnerships, Learnstream will be able to reach a wide range of people who are already interested in independent, online learning.

Learnstream will form two types of content partnerships, one featuring free content, and one featuring premium content. Free content will come from sources such as MIT OpenCourseWare and non-profit organizations wanting to do community education around particular issues (such as personal finance). These partnerships will be facilitated by the fact that many such organizations already provide their content under a Creative Commons license that allows us to use it for this purpose. Having the free content on the site will also allow users to try the platform before buying an expensive course. Additionally, it expands our user base beyond just paying users to make Learnstream a more valuable and better-known resource for all learners.

In addition to forming partnerships with nonprofit sources, Learnstream will have some commercial partners so that the site can generate revenue starting at launch. While forming these partnerships will be more challenging, there are several aspects of Learnstream that will prove attractive to content providers. The most attractive feature to content providers is how Learnstream technology will maximize the value of their content. Unlike other content providers,

partners will have the opportunity to interact with the developers of Learnstream to tailor the presentation of their content specifically for the Learnstream platform. Additionally, early content will start with disproportionately more traffic and reviews, so there is a distinct advantage for companies to partner early. Additionally, Xun Solutions is considering commission discounts for partners that provide content at launch. Once the site is launched, Xun Solutions will continue to seek out content partners and to encourage other providers to upload content themselves in order to increase sales.

In order for Learnstream to be successful, it must have a large user base. While marketing through content providers is effective, Xun Solutions plans to use a social marketing campaign to reach additional groups. Prior to launch, Learnstream will make press releases to both traditional news sources and prominent blogs related to technology and education. The innovative nature of the Learnstream approach to learning will make it an easy and compelling story for bloggers to write about. Additionally, a walkthrough of the site is available on YouTube and as a free course on Learnstream itself to give users a preview of the Learnstream concept. Once on the site, users will be able to test out the platform using the free content and see the compelling nature of this technology firsthand.

COMPETITION AND RISKS

Counting both online educators and software developers, e-learning is a \$5.6 billion industry. We classify competitors in this industry into three main categories. The first is software providers who deploy e-learning software (often called learning management systems) to institutions such as corporations or schools. Most often, this content cannot be accessed except by those employed by or enrolled at one of the institutions who license the software. Since we will not initially target these institutions, we do not consider the first category as a major competitors, but we hope that our model will eventually encourage companies to move towards Learnstream and away from closed silos of educational content.

The second category of competitors are websites that offer study tools for anyone who signs up but do not themselves provide content, instead allowing each user to aggregate their own content (and possibly share with others). Major sites in this category include OpenStudy, smart.fm, StudyBlue, and Kloofers. There also exist offline software with similar spaced-repetition review scheduling systems, including Supermemo and Anki.

Finally, the competitors most similar to us include those who provide both study tools and free and paid educational content without a fixed learning domain. This is a new and small market, but emerging contenders include Udemy, Nixty, and Academic Earth. However, none of these provide tools to match the sophistication of Learnstream.

The largest risk to Learnstream is failing to land partnerships with established user bases or having partnerships that do not substantially direct traffic to the Learnstream interface. We believe that since Learnstream provides value-added features to any existing content, and also provides a method that draws users to return daily, content providers will be willing to adapt Learnstream as their primary distribution platform.

DEFENSIBILITY AND INTELLECTUAL PROPERTY

We are currently investigating the patentability of Learnstream's suite of study tools. However, we recognize that in the online industry things often move quickly. We currently have a prototype of our product, and have invested significant time thinking about and planning the pedagogical interplay of various aspects of the Learnstream platform. Thus, we believe we have a substantial lead over any potential competitors in the market, and plan to take advantage of this in moving quickly to a dominant position. Thus, speed to market will be our greatest asset in securing our position as the key player in online education.

FINANCIAL INFORMATION

Our financial predictions are based on the revenue model discussed above, with a 25% commission on purchased courses and the average course costing \$100 for 10 lectures. For generating partnerships with initial content providers, the commission will be negotiated on a case-by-case basis, and is expected to fall between 10% and 25%, depending on the reputation and sales volume of the company. With the 250 premium courses we plan to have at the time of launch, we anticipate first-year sales of roughly 2,000 courses per month. Assuming an average of 10 videos per course, this amounts to \$600,000 in revenue off commissions in the first year. We expect that our sales will grow quickly as additional partnerships and users are added, and keeping in line with the experience of other web-based startups we aim for sales during this growth period to double each year. In our fifth year, we expect an annual revenue of \$4,000,000.

In order to bring Learnstream to launch, we will develop an improved interface, add social functionality, and create a customer service system. We plan to hire employees for programming, developing content partnerships, sales and marketing to users, bookkeeping, and general office management. Our largest startup cost is the purchase of computing equipment, and our major recurring costs include hosting and bandwidth as well as legal fees. With funding of one million dollars, we will have the resources to accomplish this and achieve profitability after two years. Our first tier investors would own 18% of the company at the time of IPO, which we hope to accomplish within five years. For an assumed P/E ratio of 20 - 25, an investment of one million now would result in 10x return on investment at the time of IPO.

SALES AND MARKETING BUDGET


While we expect to leverage the existing network of our content providers, part of the advantage offered by Learnstream is the potential of a wide-ranging, trusted distribution network for online learning material. Thus, we will require dedicated employees to work on marketing campaigns (both traditional and viral) to spread awareness of Learnstream's content and enhanced study tools. **The marketing team will maintain our web presence through social sites such as Twitter, YouTube and Facebook, as well as promote the company by posting in blogs and forums.**  Our sales team will be in charge of obtaining partnerships and recruiting free content providers. Employee costs (per year) in both sales and marketing are shown in Table 1 below, assuming an annual salary of \$70,000.

Table 1: Sales and Marketing Employees, per year

	Year 1	Year 2	Year 3	Year 4	Year 5
Sales	2	4	4	6	8
Marketing	2	2	4	6	8
Total Salaries	\$280,000	\$420,000	\$560,000	\$940,000	\$1,230,000


As the company grows, we will invest in sponsorships to both advertise Learnstream as well as promote the company's reputation. We will allocate \$100,000 in the fourth year and increase this budget by 10% in each year following for this purpose.

FUTURE PLANS

Once Learnstream is launched, it will attract current independent learners as a platform for organizing the material that they are learning. This demographic will create the critical user mass that will propagate the continued addition of new users and content. Not only do these users serve as an example of how Learnstream could be used, they would also be well-suited for using the site in its beta stage to assist with debugging. The user base will also influence new content providers, thus increasing the value of Learnstream as a hub for online education. With sufficient resources for marketing and management, Xun Solutions will be able to provide the customer support necessary to keep Learnstream operating smoothly. As Learnstream becomes established, Xun Solutions will continue to improve the site with added functionality, such as support for different languages that will allow Learnstream to reach even larger markets and eventually cater to a global audience.

As Learnstream is a platform for content, there is no limit to its future applications. While it is currently being geared towards independent learners, as Learnstream grows, new forms of content will be supported. This may include (but is not limited to) forms of accreditation, academic courses, and corporate training applications.

CONCLUSION

Learnstream represents a novel and synergistic combination of several tools in online education. Our pedagogical approach has support from psychology literature, and there is reason to believe the Learnstream platform offers substantial improvement in learning outcomes over current online education solutions. Our method for content distribution, modeled off of the iPhone App Store, will bolster the variety of courses we offer and ultimately lead to a larger user draw and create higher value for both content providers and our investors. The initial target markets, job skill training and test preparation, are both burgeoning and will provide a solid foundation from which Xun Solutions can expand. 

Corporate Structure Design: Two-Tier Top Down

(thousands of shares)

(A) Shares driven by percentages

(B) Percentages driven by shares

[Note: Enter data only in white cells].

	Percentages	Number of Shares	Percentages	Number of Shares
1 Total shares issued, excluding stock options		10,625.00		10,625.00
2 Percentage set aside for IPO	30.00		30.00	
3 Amount set aside for IPO		3,187.50		3,187.50
4 Residual shares after IPO		7,437.50		7,437.50
5 Percentage of residual dedicated to 2nd tier financing	25.00		2.94	
6 Amount purchased by Private Placement at 2nd tier		1,859.38		218.75
7 Residual shares after 2nd tier financing		5,578.13		7,218.75
8 Percentage of residual dedicated to 1st tier financing	35.00		4.55	
9 Amount purchased by New Investors at 1st tier		1,952.34		328.13
10 Shares remaining for founders		3,625.78		6,890.62
11 Memo: Stock options as add-on percent of Total shares	15.00		15.00	
12 Memo: Total stock options		1,593.75		1,593.75
13 Memo: Total shares including stock options		12,218.75		12,218.75
14 Founders distribution (% share of original issue)				
Founder A	25.00			
Founder B	25.00			
Founder C	25.00			
Founder D	12.50			
Founder E	12.50			
Founder F				
Total	100.00			
(Total must sum to 100)				
Discrepancy (must be 0)	0.00			
15 Percentages/shares owned by founders (excl. options)				
Founder A	8.53	906.45	16.21	1,722.66
Founder B	8.53	906.45	16.21	1,722.66
Founder C	8.53	906.45	16.21	1,722.66
Founder D	4.27	453.22	8.11	861.33
Founder E	4.27	453.22	8.11	861.33
Founder F	0.00	0.00	0.00	0.00
16 Percentage owned by first tier investors	18.38		3.09	
17 Percentage owned by second tier investors	17.50		2.06	
18 Percentage owned by public	30.00		30.00	

MOVESECURE

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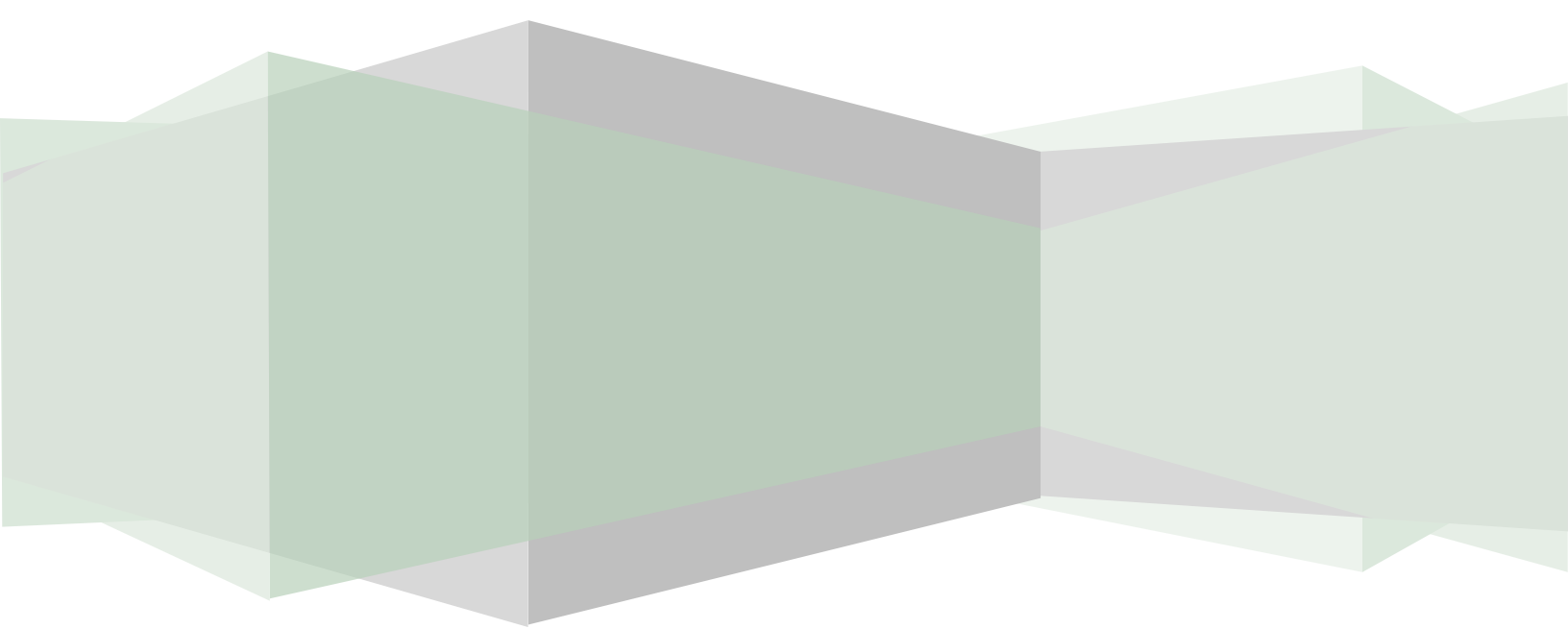


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EXECUTIVE SUMMARY

MoveSecure is dedicated to making bike commuting convenient. The number of people who bike to work is surprisingly small in cyclist-heavy cities, such as San Francisco and Seattle. Although San Francisco is filled with recreational cyclists, only 3% of commuters in the city choose bikes as their mode of transport. Companies have tried to increase the number of cyclist commuters with rewards and bike-to-work days, with promising, but impermanent results. Based on some commuters' willingness to bike upwards of 40 miles to work, the deterrent is not laziness or feasibility of cycling. The biggest disincentive is the fear of bike theft, as commuters are forced to leave their bikes locked to a public unmonitored bike rack for at least 8 hours a day.

The uDock, a smart bike rack with integrated swipe locks, is a complete bike security solution for cyclists. Regular bike racks burden the cyclist, requiring them to provide their own bike lock. The best locking systems, such as the Fuhgettaboudit Kryptonite lock, weigh upwards of 12 lbs. Additionally, these locks are only as secure as the mechanical lock mechanism, which provides an easy point of failure. Thus conventional locks are a burden for bikers and are still vulnerable to physical lock picking.

uDock is secure, convenient and easily installed. The system acts as both rack and lock, and provides superior protection by integrating the systems. A cyclist simply wheels their bike into a front wheel dock, locks the bike in with an adjustable bar and swipes their identification card. The bar protects both the front wheel and the bike frame against theft. Advanced sensors and networked electronic systems in the uDock counter bike theft and combat vandalism. Upon detection of tampering or attempted theft, company security and/or the user will be notified immediately. Because the system is not portable, components can be engineered for strength, tamper resistance and ease of use. Locking mechanisms can be built more sturdily, while still allowing them to easily fit a large variety of bicycles.

The uDock's revenue model is flexible. In addition to the sales of two-bike modules, the companies will be encouraged to purchase the insurance and theft detection program. These extra services will be paid on a monthly basis, per module. With a large market potential, these small fees will bring in steady revenue between large module purchases.

There are three main alternatives to the uDock. Our most direct competition is bike lockers which provide ultimate security, completely enclosing the bike, but cost \$1000 per bike--the uDock provides the same level of protection at half the price. Employers can purchase traditional bike racks and expect employees to bring their own locks, but this is inconvenient and ineffective. Finally employees can take matters into their own hands and

bring their bikes into the office takes up valuable space and creates a safety hazard, violating fire code.

After demonstrating success in the company market, we will expand into ride shares and public transit markets, followed by college campuses. Once we have expanded into these markets, our final targets will be cities. Because of our superiority to alternative bike racks, our uDocks will become ubiquitous.

BACKGROUND AND PURPOSE OF VENTURE

MoveSecure committed to making commuting more environmentally friendly. Many people in urban and suburban areas cycle recreationally around their homes. However, this trend does not extend into everyday commutes. Instead of biking to their workplace, many drive inefficient vehicles, sitting in traffic for extended periods of time. Despite sometimes having a one destination route, commuters are hesitant to bring out their environmentally friendly, not to mention better health-inducing, bikes, for fear of leaving them unattended while at work.

Potential cyclist commuters fear for their bicycle's safety, mechanically locked to an unmonitored, unaesthetic and crowded bike rack. Leaving it unattended in a publicly accessible area for up to eight or nine hours can be a surprisingly large deterrent for cyclists. However, a smart bike rack with a sound lock can put a bicycle owner's mind at ease.

The uDock will change the way people view bicycle parking at their workplace. Instead of worrying about lock picking and the likelihood of damage, a cycling commuter will have peace of mind, knowing their bicycle is safe. Employers, in turn, will be similarly satisfied with the money they save with the sharp increase in cycling employees. The uDock will be something eco-friendly companies can proudly display in any number of high traffic areas.

MANAGEMENT TEAM

MoveSecure is a small operation, with limited employee growth in the future. Our CEO, Madeleine Ong, will manage the operations of MoveSecure until the uDock is pervasive enough to necessitate an executive with more industry experience. Christopher Ferguson, our CTO, is in charge of a three-man research and development team. At the point of expansion into larger markets, his focus will be extended to include maintenance of installed uDocks. Andrea Levy, our CFO handles the company's finances, tending to the revenue streams.



DESCRIPTION OF MARKET

The uDock is the future of bike racks and can be used wherever a traditional rack currently would be used. The target audience can be split into two areas, working commuters and recreational cyclists. The uDock will be initially pitched to large companies, who are willing to invest significant money in a large number of modules. The market will then be expanded to include smaller companies and eventually public transportation and cities.

INITIAL MARKET: LARGE TECH COMPANIES

To enter the market, we plan to focus our initial sales on technology companies in Seattle and Silicon Valley (e.g. Microsoft, Google, Facebook, Yelp, etc). These companies have been selected for four reasons. The first reason is that these locations already have a large number of cyclists. Employees of these companies earn a high salary and are therefore more likely to own nicer bikes, which they are more concerned about. By providing uDocks at the office, cyclist commuters are not required to even carry a lock since most commuters go directly to work and back so the uDocks is the only rack with which they will have to interact. Finally, these companies frequently offer transportation related benefits to make it easier for their employees to commute (e.g. public transportation passes and shuttles) so human resources at these companies will be more willing to consider the uDock as an investment. We plan to sell to these companies a number of units to accommodate 5% of their employees biking to work.

FUTURE MARKETS

After demonstrating the utility of the uDock to technology firms, we plan to expand to other companies in both different sectors and different regions. Once we have successfully entered the corporate market, we will begin marketing to public transportation hubs and ride share locations. These maintain the advantage of being the sole destination of the bikers. As we switch markets we will make changes in the technology allowing users to use alternative cards rather than company IDs. We also have the potential to charge users a small fee. In the third expansion phase we will market the uDock to college campuses as a demonstration of the use of uDocks in a community with multiple destinations. Finally, we will market the uDock to cities.

PRODUCTS AND SERVICES

The uDock, a simple bicycle rack with electronically controlled lock, is a simple and elegant solution. There are two primary products MoveSecure will market, the uDock rack and a security and insurance plan.

UDOCK SMART RACK

The design of the uDock is relatively simple and affords the greatest security for the user's bike, while saving on materials and maintaining an attractive appearance. Because the uDock has an integrated electronic locking mechanism, it allows the system to offer greater security and peace of mind than any existing traditional bike lock.

BICYCLE DOCK

The main structural component of the uDock is a large S-shaped piece of Plexiglas that creates two opposite-facing slots for bicycle parking. The uDock is several feet tall—tall enough to surround the front wheel and frame of the bike, but short enough to avoid the bike's handlebars. By designing the uDock in 2-bike modules, the material cost is reduced compared to an individual bike unit, while *maintaining an efficient degree of modularity*. Each unit must be installed by bolting it to the ground at a few key points.


INTEGRATED LOCK

Along the outside edge of each dock, a height-adjustable module contains the locking element and electronics, including the ID scanner. The locking element itself consists of a thick metal bar that extends through the bicycle frame, across the dock entrance. By allowing the height of the bar to be adjusted, the uDock can accommodate a wide variety of bicycle models.

ELECTRONICS

The electronics that are contained in each uDock provide a variety of useful features. The first and most obvious advantage *is the increase in user convenience by enabling ID cards to be used to lock and unlock the bicycle*. By using an electronically controlled lock, instead of a combination or key-based lock, the uDock avoids the common point of failure of picking the lock. The system's electronic basis provides the uDock with several additional features, the most useful of which is an electronic anti-tampering system. With various sensors in the locking mechanism and spread out throughout the uDock, different forms of tampering can be detected and reported using wireless communication. If a company signs up for the security service, MoveSecure is able to notify a user via email or text message when their bike was tampered with, allowing them to take more direct control of their bicycle's safety.

REVENUE

When companies buy the uDock, they purchase any number of 2-bike units to be installed; the price of the rack includes installation. The price of these units is \$800 and the cost is \$515 for manufacturing and installation. 


SECURITY AND INSURANCE PLAN

An additional feature that we can offer is a security and insurance plan, enabling cyclists to have a greater peace of mind when leaving their bicycle parked in the uDock.

THEFT DETECTION PROGRAM

The uDock will use internal electronics to detect tampering and alert security if there is an attempt to steal or vandalize a bike. This allows us to offer a theft detection program, where we will monitor bikes and react to any disturbances. When we detect disturbances, we can alert both the security team for the company and the individual whose bike is being affected to insure prompt response that will catch vandals in the act. Due to this quick response time, we believe that thieves will pick other targets and our racks will become known for their security.

BICYCLE INSURANCE

We will offer a bicycle insurance plan of \$5000, which is more than any alternative bike lock, for units that purchase the theft detection program. Due to the electronic security and the simple strength of our lock, we are confident that this will provide additional revenue as we will rarely if ever have to pay out. By providing this service, we will help users feel confident that their bikes are safe. 

REVENUE

This plan will cost \$10 per unit per month and cover both the theft detection program and bicycle insurance. We do not expect to have to pay for bike thefts due to our advanced security so we expect more than 50% of this to go towards profit.

DISTRIBUTION AND MARKETING

We must market the product to buyers and users. The product will first be marketed to companies that have expressed interest in motivating bicycle commuting, by their employees who already bike for fun. It will be presented as an economical way to reduce the environmental impact of the commutes to work. By making things more convenient for bikers, the uDock encourages them to bike to work. Employers will buy the

system to gain tax 20\$ tax credits available each month to companies for each employee that bikes to work on a majority of the workdays. They will appreciate the opportunity to act green and to organize and manage bikes in their facilities.

We focus on the **commutes**, because they represent single destination rides, where the installation of the uDock, would mean the user could leave their lock at home to save the weight. Communities that are managed by a single facilities staff could also use the uDock to make bicycling more convenient. Colleges nationwide have problems with bike-theft and with bike-rack management. The uDock would be a useful tool in this environment.

As with companies, ride-shares and train and ferry stops could also benefit from the uDock. Though the tax incentives are not available to these locations, they charge for parking, and the uDock's electronic locking provides an option for metered bike parking. We expect that partnership with bicycle coalitions could help to motivate these groups to adopt the uDock as a better alternative for bicycle parking.

The uDock requires distribution and installation for the modules. The installation will be performed by contractors who normally install street signs and conventional bike racks. Wireless modules will let us do software setup remotely.

COMPETITION AND RISKS

The uDock is positioned to out-compete bike racks and conventional locks by offering the advantages of lock integration to both the buyers and the users. Users will prefer the uDock, and it will facilitate regular biking to work. It will give employers the records that will help them support claims that their employees are biking to work and thus receive the promised tax benefits.

The uDock will encourage more users to bike places by offering increased security and ease of use. When compared to the top end U-lock such as the Kryptonite Fahgettaboudit, the uDock is as secure and easier to use. Instead of carrying a lock, the user simply arrives at the destination and uses the uDock to secure their bike. To achieve the equivalent level of security, a biker would have to carry 12 lbs of equipment, including a U-lock and enough chain to secure the front wheel.

The uDock is cheaper than Bike Lockers[®] and offers comparable security. The uDock will be marketed at 500\$ per bike, which is half the price of a locker. The uDock is also better looking than a bike locker. By placing well managed bike racks near trafficked areas, companies may advertise that biking has become a viable method to commute to their workplace.

By encouraging commuters to use the uDock, companies will motivate biking to work, and see the system pay for itself and related services in 2-4 years, depending on utilization. If one spot is used, half of the days, then the system's will represent a \$20/month tax credit to the buyer, which is enough to cover the \$10/month service, and pay for the rack itself in 50 months. If the system is filled every day, then it will represent \$40/month of tax credit, and will pay for itself in only 17 months. That's faster than any photovoltaic option.

Over the course of a year, the energy savings of one rack, used half the time by a single employee that lives 1 mile from work are equivalent to 1000kWh of electrical power. To save this much energy by building PV systems on the roof would cost \$8000. The uDock is therefore an economical green alternative to parking lots.

As a startup, MoveSecure will sell only to endpoints of single end point commutes. These constitute roughly 20% of American mileage, and are performed by 160M American commuters. For now most of them drive, but if a portion of them could begin to bike, that would represent a large market. Apartments, college campuses and municipalities, also represent an area for growth. We couldn't expect to sell to people who will be biking to other locations because they won't have a reason to value the services offered by the uDock.

FINANCIAL INFORMATION

MoveSecure has two means of generating revenue: sales of uDock bike racks and sales of the insurance and security-monitoring program. In the first year, it is reasonable to expect that we will make contact with four companies, and that by the end of that first year, we will have contracts with two of them. Since the companies with whom we plan to form relationships are environmentally aware and encourage their employees to bike to work, it is reasonable to expect that the companies will purchase 500 uDocks each. The companies will receive the insurance and security plan free as part of MoveSecure's promotional campaign for the first customers. The customers will still purchase the uDocks for \$800 per two-bike module. Through selling the modules, MoveSecure expects to earn \$830,000 in revenue in the first year. In the second, third, fourth, and fifth years, MoveSecure expects to increase sales of uDocks and to begin selling insurance and theft-monitoring for \$10 per month per module (\$120/year). The expected revenues for these years are \$2,826,000, \$6,018,000, \$8,674,000, and \$9,730,000, respectively.

The cost for the materials to make one uDock module is \$310. The installation and transportation costs amount to \$205. The total cost to MoveSecure to produce one module is \$515. This includes the cost of contracting out the actual production and installation of

the module. The insurance aspect of the insurance and theft-monitoring service costs conservatively \$3 per year: \$1 of which pays insurance claims and \$2 for the security service (since much of the cost is included in the uDock materials).

Startup expenses include \$10,000 of computing equipment, \$100,000 for initial advertising, and \$100,000 in legal fees. With seven employees salaried at \$50,000 each, the annual salary expense is \$350,000. Over the course of the first five years we plan to grow this to \$550,000, which covers 11 employees. Other operating expenses include the lease of office space, tax accounting expenses, and research and development. The cash flow in the first year is negative \$486,000. In the second year, the cash flow becomes positive \$2,457,000, and the cash flow increases over the following 3 years.

In terms of profit, MoveSecure expects to be operating at a loss in the first two years. However, by the third year, the business will be profitable with a net income of \$1,130,000 in that year.

FUTURE PLANS

In three years, we expect to have established a good foothold in the technology company market. uDocks will be installed in a variety of large and small companies. We will then expand our marketing efforts to appeal to colleges and public transportation parking, such as metro or ride share parking. Once we are better established in these markets, users will become used to the uDock and will aid in our expansion into city's public parking.

Assuming consumers realize the benefits of the uDock, once the major commuter markets have been penetrated, MoveSecure's growth should be self-motivating. When cities and colleges are looking for new ways to buy new bicycle racks and increase their environmental ratings, they will be pointed in the direction of the uDock by users who have been introduced to the product in their working environments.

There is little anticipated increase in the number of employees. Since we are not responsible for the manufacturing or the installation of the uDock, we only plan to hire one or two more employees in the next five years, for customer service and maintenance.

CONCLUSION

MoveSecure's uDock will satisfy companies with the increase in cycling commuters, paying for itself and insurance plan within two to four years, from the tax incentive savings alone. Cyclists will finally have their peace of mind, confident the uDock is securely locking their bicycle in place until they return for another joyous bike ride. We are confident that the uDock will soon become every cyclist's choice of parking.