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BioBotic Solutions

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BioBotic Solutions

THE PATH TO PATHOLOGY PERFECTION

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Executive Summary

The Opportunity

The pathology industry has an impact on seventy percent[i] of medical decisions made, yet this industry is burdened by errors and inefficiencies. Mistakes in surgical pathology laboratories cost labs and insurance companies approximately $2.1 billion every year in the United States alone[ii]. Mislabeling of tissue samples and contamination of specimens, which are common sources of pathology lab errors, result in improper diagnoses, leading to unreported cancers and unnecessary surgeries and painful treatments. Lawsuits resulting in awards of up to $3 million[iii] have been reported just from problems with tissue sample handling. Most important, nearly seven million laboratory cases a year contain an error that could harm the patient.[iv]

In addition to patient harm due to misdiagnoses, manual handling of tissue samples can produce personnel stress on pathology laboratories. The number of pathologists' assistants (PAs) is expected to decline and demand for them to grow[v] in the next two decades as a consequence of our aging population. The decreased supply of PAs and increased demands on them are likely to lead to a higher tissue handling error rate in the future.[vi] Automation is a way to address both issues: it decreases human errors due to manual handling of tissue samples and also allows pathology labs to handle more samples with fewer employees.

The mission of BioBotic Solutions is to eliminate inefficiencies and errors in pathology laboratories. As a first step, we are introducing the PathOne and our patent-pending BioBox, which together will automate the manual transfer of biopsy tissue specimens in pathology laboratories. The $300 million[vii] annual market for the consumable specimen transport containers and biopsy bags that the BioBox will be replacing is growing at approximately 5% CAGR per year.[viii]

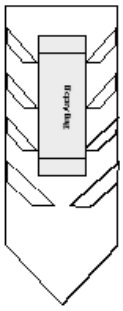
Product and Competitive Advantage

Our solution consists of two components that work together: the PathOne machine and the consumable BioBox. To minimize capital requirements, we are following the "Xerox model:" we are partnering with a manufacturer to develop, manufacture, distribute, and service the PathOne, while we focus our efforts on our patent-pending BioBox. The PathOne consists of (1) a robotic arm that transfers tissue samples from the BioBox to a cassette (a small container), (2) an automatic bar code labeler, and (3) a conveyor belt that moves the tissue from initial

reception in the lab to a container where it awaits transfer to the diagnostic area of the lab. The PathOne will greatly reduce the time needed to perform the current labor-intensive and error-prone tissue labeling and transfer process.

The BioBox replaces the separate containers and biopsy bags that are currently used to handle tissue samples with a single container that includes both. By combining these two separate components into one (see Figure 1), the tissue sample never leaves the biopsy bag once a surgeon has placed it in the BioBox in the operating room. This reduces the risk of cross-contamination of tissue samples, which accounts for about two-thirds of specimen errors[ix]. The BioBox was invented by a pathologist at the University of Arkansas for Medical Sciences (UAMS) who saw the inefficiencies in the current method for tissue sampling employed in pathology labs. A prototype has been developed at the University of Arkansas by a team of biomedical engineers led by our CTO.

Figure 1: BioBox



Management Team

Our management team is diverse and has expertise in pathology, entrepreneurship, finance, chemistry, and engineering. Our Interim Chief Executive Officer and Chief Financial Officer, Michael Iseman, is an honors Finance major at the University of Arkansas (UA). Rachel Zweig, our Chief Operating Officer, is a Mathematics and Chemistry major at Hendrix College. Our Chief Technology Officer, Kelley Coakley, is a Biomedical Engineering major at UA and led the development of the prototype for the BioBox. Maria Driesel, our Chief Business Development Officer is a Master's candidate in Engineering Management and was a scholar of the Manage&More Qualification Program for Entrepreneurs in Munich, Germany.

Dr. Shree Sharma, a medical researcher and pathologist at the University of Arkansas for Medical Science (UAMS) and the inventor of our technology, will serve as Chief Scientific Officer. We are seeking a permanent CEO with extensive experience in the pathology industry and a Director of Sales and Marketing.

Offering, Financial Summary & Exit Strategy

We are currently seeking seed funding of $400,000 in the form of convertible debt to finish developing and testing our prototype and to hire a permanent CEO. We will be seeking an additional Series A funding round of $750,000 in 2015 to fund the cost of validating our initial units and acquiring initial customers. Series B funding of $1 million will be sought in January 2016 to penetrate the market and provide operating capital for growth.

Table 1: Investment/Funding Rounds

Investment	Amount	Structure	Timing	Uses
Angel	$400,000	Convertible Debt	May 2014	Business & Product Development
Series A	$750,000	Preferred Equity	January 2015	Validation and Customer Development
Series B	$1,000,000	Preferred Equity	January 2016	Production and Market Penetration

We have identified multiple international medical manufacturers as potential acquirers of our technology. Becton Dickinson, Copan and Roche all provide automation solutions to the pathology industry and have a history of acquiring growing companies similar to BioBotic Solutions. Becton Dickinson's earnings statements show an average of $250 million spent on acquisitions over the past four years, and Roche recently acquired BioImagene, an innovative leader in the field of digital pathology workflow and analysis, for $100 million in its 6th year of operation. Based off of an 8x EBITDA plus cash multiple, which is significantly less than the industry average of 20x earnings, and including discounted future earnings under contract, BioBotic Solutions will be valued at $80 million at the start of 2019. This offers a return of 36x, 26.5x, and 8x to Angel, Series A, and Series B investors, respectively.

Company Overview

History and Current Status

Pathologists handle the majority of the behind-the-scenes work in the medical field. Although they have very little patient interaction, they play an important role in the tissue examination that leads to 70% of all disease diagnoses[x]. BioBotic Solutions' area of focus in the pathology industry is that of specimen grossing. Grossing is the entirely manual process of transferring a tissue sample from a container into a biopsy bag, which is then placed in a cassette (small container) before being sent off for processing and diagnosis.

The pathology industry currently faces three major issues: inadequate quality control, such as mislabeling of specimens and contamination, insufficient laboratory staffing, and financial constraints. Seeing these problems in the lab, Dr. Shree Sharma invented a solution that addresses each of them. Dr. Sharma is employed at UAMS, which filed a patent application for the BioBox (U.S. patent application #20/120,220,044) in 2012. The filing attorney, Blake Glasgow, of Wright, Lindsey & Jennings LLP, has been recognized by Mid-South Super Lawyers in the field of intellectual property. To move his solution from an idea to the market, Dr. Sharma reached out to the University of Arkansas for assistance in developing the prototype and the business.

BioBotic Solutions was founded by undergraduate students at the University of Arkansas and Hendrix College in the fall of 2013. We have made significant process in advancing the technology after speaking with potential customers, the FDA, robotic manufacturers, medical supply manufacturers, and industry experts. We hold an exclusive option on an exclusive license for the technology from UAMS BioVentures. To develop the prototype, we partnered with a team of UA biomedical engineering students, led by CTO Kelley Coakley. We are seeking seed funding for the prototype development of our robotic system, the PathOne, and for hiring a permanent CEO.

Mission and Vision

Recognizing the need to decrease errors in the tissue handling process and save the pathology industry both time and money, our mission is:

> ***"to develop technologies that automate the pathology laboratory to increase efficiency and decrease both costs and errors that lead to misdiagnoses."***

We envision that our tissue handling process will be the industry standard by 2021.

Goals, Objectives and Strategy

In order to realize our vision of becoming the industry standard and achieving our sales goals, we have developed a detailed outline of our objectives and milestones. Our core strategy is to outsource production, distribution, and servicing of the PathOne, while focusing on sales of the BioBox. We will maintain close contact with our end users to meet their needs with our customer-driven solutions. To minimize capital outlays, we will follow a "Xerox model."

Figure 2: Goals, Objectives, and Strategies

Dec. 2014: Business & Product Development

- Use $400,000 seed funding to:
  - Pay UAMS patenting costs
  - Hired qualified personnel and CEO by Sept. 2014
  - Contract with robotic manufacturer to develop the PathOne prototype

Dec. 2015: Validation & Customer Development

- Use $750,000 Series A funding to:
  - Validate the PathOne and BioBox at UAMS
  - Negotiate with two additional labs for beta testing & provide further validation
  - Publish validation results of the PathOne in trade journals and present it at pathology conferences
  - Identify early adopters

Dec. 2016: Inventory & Market Penetration

- Use $1,000,000 Series B fundting to:
  - Acquire first customer
  - Contract with medical distributor
  - Contract with robotic manufacturer to produce, distribute, and service the PathOne
  - Negotiate supply agreement with company to manufacture & distribute the BioBox

We will sell the PathOne and BioBox via reagent rental agreements with pathology labs. With a reagent rental agreement, Multi-Craft Contractors, or our chosen manufacturer, will install the PathOne at no or low cost to the lab. Labs will then be charged a premium for each BioBox purchased. The price of the BioBox will depend on a lab's projected volume. For a lab processing 40,000 samples a year, each BioBox will be priced at $5.00. The pathology labs will also pay our manufacturer $10,000 per year for the service agreement, which is typical in the industry. After talking with pathologists, we have concluded that this is the most viable sales strategy, as labs will be more willing to purchase the equipment if it does

not require a large upfront capital investment. The milestones associated with each round of funding are outlined in Figure 2.

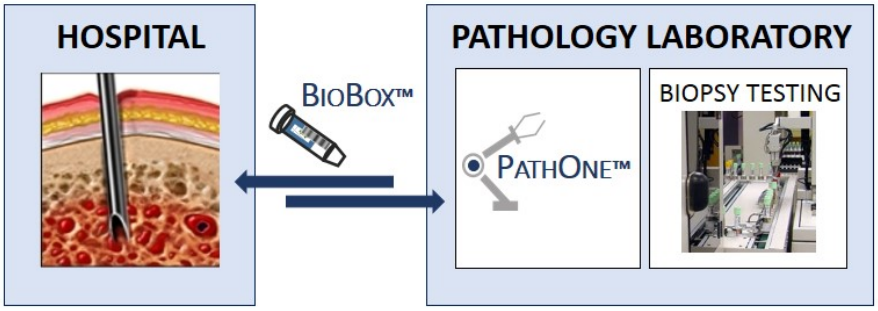
Product

Features and Current Stage of Development

Most pathology laboratories are privately owned and independent of hospitals. Pathology laboratories send containers for biopsy samples to hospitals that have contracted for their services. The containers are sent in bulk to the hospitals, and the surgeon, nurse or other qualified personnel selects the appropriate container for the biopsy before surgery. After surgery, the container with the sample is returned to the lab.

Our innovation consists of two products: (1) the PathOne, which is a robotic system placed at the front end of laboratory to automate the manual specimen labeling and handling system currently used in labs and (2) the BioBox, which will replace the container sent to the hospital and the biopsy bag into which the tissue sample is manually placed in the lab.

Figure 3: Pathology Workflow



The differences between the manual grossing process and the automated PathOne grossing process are outlined in Table 2.

Table 2: Comparison of the Status Quo and the PathOne

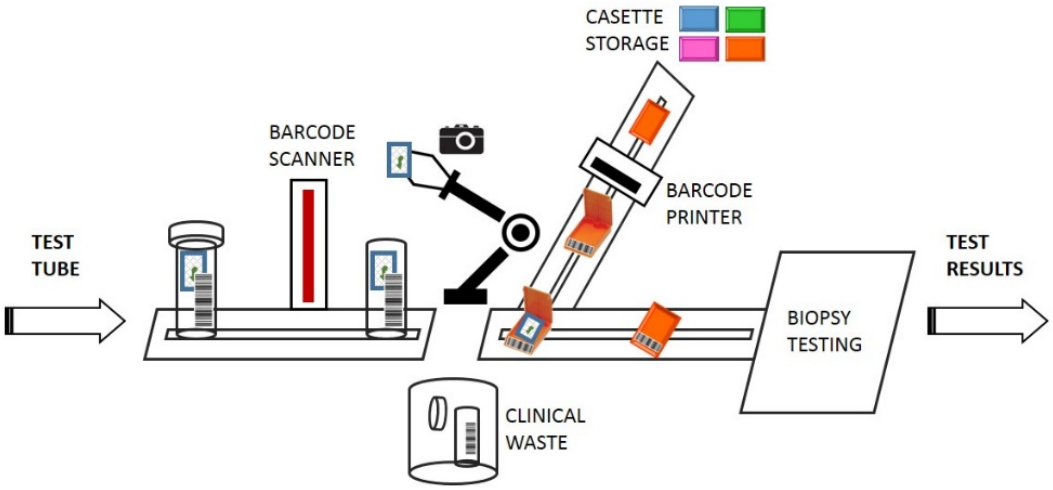
Status Quo	**PathOne**
PA receives tissue in container	PA receives tissue in BioBox and places it on PathOne conveyor belt
PA labels cassette	Barcode is scanned and printed on cassette
PA removes tissues from container	Robotic arm uncaps tube and removes bag
Verbal description of the specimen	HD camera photographs specimen in transparent bag
PA places specimen in biopsy bag	(Specimen already in biopsy bag)
PA places bag in cassette	Robotic arm places bag in cassette
PA disposes of container in clinical waste	PathOne discards BioBox in clinical waste

Following this process, the cassette is sent to the diagnostic laboratory, an area of pathology that is already highly automated.

PathOne

The PathOne is an automated robotic system that is used at the front end of pathology laboratories. The small, approximately three-foot system can fit on a current lab station table and will not disrupt a lab's workflow. It is made up of a conveyor belt, a robotic arm, a storage container of different cassettes, a barcode scanner and printer, and a high definition camera. The cassettes are containers in which specimens are placed for further processing and are already used in the pathology industry; we will not be introducing new cassettes or replacing what is currently used. The robotic arm will have six degrees of freedom, and a special hand piece to handle the biopsy bag; this system may be the source for a future utility process patent application. PAA Automation and Multi-Craft Contractors, both robotics manufacturers that have given us insight on their manufacturing process, have assured us that our system can be developed and manufactured with ease. The PathOne does not come in direct contact with tissue samples and requires no FDA certification.

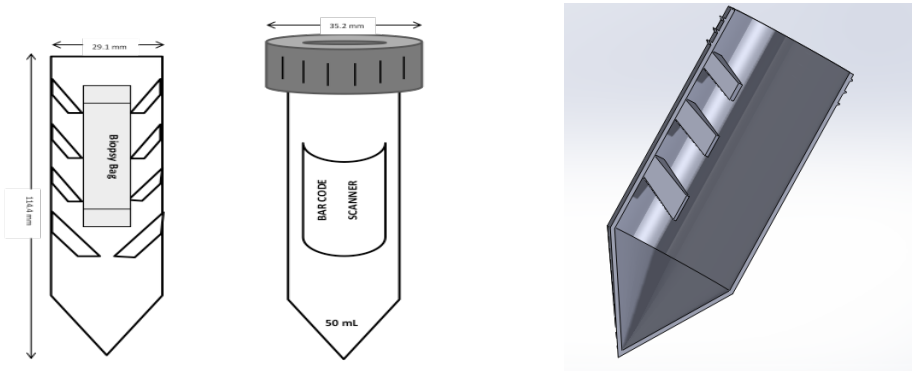
Figure 4: PathOne



BioBox

Our patent-pending BioBox (see Figure 4) consists of a conical polypropylene test tube that includes an inset, transparent biopsy bag that is held in position by prongs on the inside of the test tube. The bag will be made of solvent resistant nylon (Industrial Netting: Catalog number: NN 3100 Nylon Mesh) that fits into industry-standard cassettes. A liquid preservative, 10% neutral buffered formalin (Formaldehye 50-0-0), will be in the tube to ensure the specimen is fresh upon delivery to the laboratory.

Figure 5: BioBox



The BioBox is a Class II device as defined by the United States Food and Drug Administration (FDA) and must meet the FDA's Good Manufacturing Practices requirements. The BioBox prototype was designed in AutoCAD and has been 3D printed at the University of Arkansas. Our next steps are to send our prototype to a manufacturer and work with them to produce the BioBox on a larger scale.

Benefits

We not only protect patients, but we also offer an affordable and timesaving solution to pathology laboratories, taking them one more step towards the 100% quality control program they have told us they want. In contrast to the current method of manual grossing, after the doctor places the tissue sample in the biopsy bag, the sample never leaves the bag again, meaning no chance of cross-contamination or specimen mix-up.

During transfer from the BioBox to a cassette, a picture is taken by the PathOne to verify that the laboratory received the sample and to document the specimen; this will replace current inconsistent verbal specimen descriptions. In addition, the PathOne can operate 24/7, relieving the bottleneck that currently characterizes end-of-day operations. Pathologists at both NWA Pathology and UAMS have reported this as one of the biggest problems currently facing them and their laboratories.

By automating the grossing process, PAs, technicians, and residents are available to do other important tasks within the laboratory that require analytical skills and cannot be automated. Staffing difficulties have been widely reported by the American Society for Clinical Pathology, and automation would eliminate the need for one or more of those positions, depending upon lab volume, helping to alleviate the staffing issue.

We will also increase laboratories' value proposition to their customers, the hospitals whose samples they process. Laboratories using the PathOne will have lower operating costs and can pass on their cost savings to hospitals and/or increase their profit. More important, these laboratories can advertise lower error rates and increase their revenues as the number of samples they process increases. Being able to differentiate themselves is especially important for labs in metropolitan areas, such as New York City and Los Angeles, which have over twenty pathology laboratories competing for business.

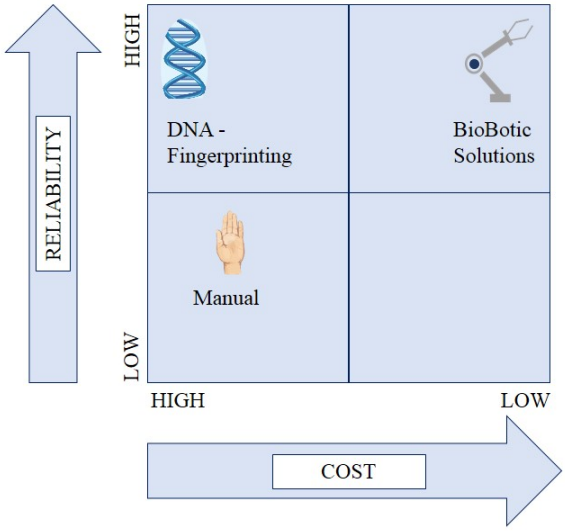
Competitive Analysis

Our patent-pending BioBox, strategic alliance with UAMS, and relationships with pathology laboratories give us a strong competitive advantage. UAMS has agreed to host our pilot deployment of the PathOne to validate its functionality and reliability. Also, our inventor, Dr. Sharma, is well respected and has a large network within the industry. We have also developed a strong network as we have developed the business.

We contracted with a third party market research firm, Invention Evaluator, to gain a further understanding of the industry and the feasibility of our solution. The report yielded favorable results, identifying our patent application as very useful, novel, and inventive, giving it a high probability of being granted and creating a strong barrier to entry for potential competitors.

Furthermore, our position as an industry first mover is a competitive advantage. Being a first mover will allow our company to validate our solution and establish credibility with customers without the concern of any direct competitors. Due to the length of time required for validation, we anticipate being able to sell to pathology laboratories before competing technologies are ready for purchase. In addition, the length of the contract for reagent rental agreements, typically three to five years, will allow us to evaluate the PathOne, improve it based on customer feedback, and deepen our relationships with pathology laboratories.

Figure 5: Market Advantages



Finally, our system offers a variety of advantages in comparison to our indirect competitors in the market, as seen in Table 3 and Figure 5. Our direct competition is the status quo of manual handling, which we have described above.

A third-party research firm has done a patent search on our technology and verified that there are no directly competing technologies on the market or in the pipeline today. Automation technologies are available for other processes in the pathology laboratory, and the PathOne would integrate with these to help streamline the laboratory workflow. Upon an issuance of a patent for the BioBox, there will be even greater barriers to entry for other laboratory robotic manufacturers.

An indirect form of competition is DNA matching analysis, which can be used to catch specimen mix-ups after they occur, but this is costly, time consuming, and catches mistakes rather than prevents them. KnowError is an example of a company providing this service; after taking a swab sample of the patient's cheek, they match it with the DNA of the biopsy if the sample comes back positive. DNA matching analysis is seldom used, however, due to the high cost-about $1500 per case-and labor needs and increased turnaround time.[xi]

Table 3: Product Advantages

Advantage	BioBotic	DNA Matching	Manual Handing
Staff Needed	0	≥2	2
Cost per Sample	$5	$200-$1500	$5
Lower Chance of Specimen Mix-up	✓	✓	

Market and Competitive Analysis

Market Overview

The annual market for the consumable specimen containers and biopsy bags that the BioBox will replace is worth about $300 million today, and the number of biopsies performed each year is increasing at a CAGR of 5% [xii]. Revenue for anatomic pathology labs, which are responsible for grossing biopsy specimens, grew 16% from 2006-2009.[xiii] These point to a growing market for biopsies and the consumable products used in them.

Driving Forces

With worldwide trends such as an aging population, increasing cancer rates, and a larger focus on health care, pathology laboratories are processing more specimens than ever before. Among Medicare enrollees, the number of biopsies performed increased at a compounded annual growth rate of 3% between 1997 and 2008.[xiv] Technological advances are playing a large role in the world's leading industrial countries, and automation has replaced many manual processes, such as in vitro diagnostic systems. We have identified three industry-specific forces that provide an opportunity for BioBotic Solutions.

Quality Control: Mislabeling and Cross-Contamination

Human errors during the manual grossing process include the mislabeling of specimens, cross-contamination, and spillage or losing small tissue samples during the transfer from the test tube to the cassette. Washington University and the American Journal of Clinical Pathology have conducted studies of errors committed during the routine pathology process. These studies examined over 13,000 specimens and found error rates of 3% and 0.93%, respectively. Assuming 0.93%, the low end estimate, a midsize lab processing 40,000 samples in a year will make 370 preventable mistakes per year. The Institute of Medicine reported that 70% of specimen-identification errors happened in the gross room.[xv] Errors that are caught can cause lab staff to spend fifteen to forty-five minutes correcting the mistake. [xvi, xvii] Six percent of errors, or nearly 4 million cases a year, lead to patient harm, which demonstrates a need for an error-free solution.[xviii]

Human Resources: Lack of Laboratory Personnel

In its Wage and Vacancy Survey of Medical Laboratories, the American Society for Clinical Pathology found that 43% of laboratories reported difficulties hiring personnel, which they attributed to underqualified applicants, retirement, and high turnover.[xix] Quest Diagnostics, which employs about 8,500 lab professionals, making it one of the nation's largest lab companies, currently has about 1,200 job openings nationwide, illustrating their staffing problem.[xx]

When labs face a high volume of specimens to gross, they either use less qualified personnel or improvise by pulling staff from other work areas and asking technicians to work double shifts. Not only does this put a strain on the laboratory, but it also increases the risk for an error by having under-trained and overworked employees in the gross room.

The PathOne will free up PAs to gross larger tissue samples and specimens that require special orientation or manipulation before being tested. These tasks cannot be automated and require the expertise of a trained PA. Sixty percent of the tissue samples that labs typically receive, however, will be able to be grossed by our solution.

Financial Constraints: Decreased Reimbursements

Due to the expiration of the Technical Component (TC) Grandfather Clause and recent healthcare reforms, federal reimbursements to labs for the Current Procedural Technology (CPT) code for the grossing of small biopsy specimens decreased by 52%. From 1999 to 2012, the TC Grandfather Clause provided reimbursement to pathology laboratories for much of the clinical work done in the lab,[xxi] but that reimbursement rate has now ended. Pathology labs are not getting compensated for this lost revenue elsewhere. As a result, they are desperate for cost-saving measures, such as the PathOne and BioBox.

Market Acceptance

Due to these driving forces, pathology laboratories will have a strong need to adopt new automation technologies. The pathology industry has a bias towards the status quo of manual tissue handling. Pathologists with whom we have talked, however, recognize inefficiencies in grossing and are excited about our technology. Pathologists drive the purchasing decisions in most labs and are the decision makers in independent laboratories; once new technologies have been validated and shown to be reliable and effective, they can make purchasing decisions in a month[xxii]. To encourage rapid adoption of our technology, we will be building the cost of the PathOne into the consumable BioBox. This approach is very common in the industry and is widely accepted by pathology labs.

The average salary of a pathologist's assistant is $73,000, and that of a lab technician is $42,000 to $49,000[iv]. Laboratories currently pay $3.35 for the containers and biopsy bags used to process a specimen. The BioBox will replace these disposables, and will also remove the labor cost associated with grossing each specimen. With our integration, labs will be able to eliminate

or avoid hiring the equivalent of one to two full time positions. Even a lab on the conservative end of our target market, one processing 40,000 samples per year, will experience an immediate cost reduction due to personnel savings.

Management Team

Management Profile

Dr. Shree Sharma: Chief Scientific Officer

Dr. Shree Sharma has been working as an Assistant Professor in the Department of Pathology at the UAMS since 2012. He finished his pathology residency from one of the premier institutes in India (AIIMS, New Delhi) before moving to the United States in 2007.
He specializes in renal pathology and finished his fellowship from Columbia University Medical Center in New York in 2012 Dr. Sharma is interested in integrating technology into the day-to-day workings of the laboratory to improve patient care. He has more than 25 publications in peer-reviewed journals and book chapters and has presented many abstracts and posters at national and international conferences. . Leica recently telecasted his webinar on mobile technology in pathology. Dr. Sharma is a member of many pathology organizations, including the Innovation Educational Products Committee of the United States and Canadian Academy of Pathology (the biggest pathology organization in U.S. and Canada). Dr. Sharma is a young, energetic pathologist and sees opportunities to treat problems that have long gone unaddressed in pathology labs; that passion led him to invent our technology.

Michael Iseman: Interim Chief Executive Officer and Chief Financial Officer

Michael Iseman is a senior at the University of Arkansas, where he studies Finance and Spanish. He spent a semester studying business and Spanish in Spain and speaks Spanish fluently. He served as an intern at the ARK Accelerator, a startup accelerator providing young technology and retail startups the resources they need for success. At the ARK, he gained exposure to the practical steps needed for cost-effective early business development.
He currently works as an associate at Elevate Performance, a consulting firm providing leadership development resources to the CEOs of Northwest Arkansas businesses through CEO Forums. There, Michael has established a powerful network with the more than forty regional leaders in business, and gained exposure to the issues and opportunities facing a C-Suite executive.

Rachel Zweig: Chief Operating Officer

Rachel Zweig is a sophomore at Hendrix College and is pursuing a double major in Chemistry and Mathematics. She is co-captain of the Hendrix women's soccer team and made the Academic All-District Team in 2013. Rachel is an Arkansas Governor's Distinguished Scholar and was a National Merit Finalist in 2012. She worked in her family's small business for many years and has pursued her own entrepreneurial endeavors since she was 10.

Kelley Coakley: Chief Technology Officer

Kelley Coakley is a senior at the University of Arkansas studying Biomedical Engineering and Mathematics, with a Sustainability Minor. She is on the premedical track and has been accepted into UAMS, where she will start medical school in the fall of 2014. Kelley has been participating in research at the UA for three years and leads the team of biomedical engineers developing the BioBox.

Maria Driesel: Chief Business Development Officer

Maria Driesel was born and grew up in Germany. She is studying Engineering Management at the Technical University of Munich with a focus in Innovation, Entrepreneurship and Project Management. As a fellow of the 18-month Manage&More Qualification Program she gained extensive knowledge in entrepreneurship. Manage&More focuses on working in interdisciplinary teams as well as developing and implementing business concepts to create innovative and marketable products and services. As a participant of this program, Maria applied her education to innovation projects with BMW Group and Bosch. In addition, she gained a lot of experience in project management with her work at IMP Management GmbH, where she worked in the field of office space planning.

Future Needs and Compensation

The first key hire for BioBotic Solutions is a CEO with extensive experience in both the pathology industry and lab automation equipment industry. In 2015, we anticipate hiring a Director of Sales and Marketing to lead customer development as the PathOne finishes validation and becomes market-ready. The Director of Sales and Marketing will lead the management team in securing our first five accounts in 2016.

The current management team will be compensated with an annual salary of $25,000, growing at 7% beginning in 2015. Once the permanent CEO has been hired, he or she will start with an annual salary of $150,000. Both the management team and the CEO will be compensated with equity distributions based on longevity and the achievement of both personal goals and company milestones. Provided that all goals are met, equity will be distributed to the CEO at a rate of 2% semiannually and to the management team at a rate of 0.5% semiannually.
This agreement will expire and management benefits will be reevaluated after three years, in 2017, with a maximum of 24% ownership distributed as compensation.

Board of Advisors

Table 4: Board of Advisors

Advisor/ Position/ Company	Focus	Qualifications
Thomas Blodgett **Director of Operations** **Multi-Craft Contractors Inc.**	Automation and Robotics	• Developed A&R program at Multi-Craft Contractors • Served as the director of project development
Jared Greer **Medical Device Sales Rep.** **Medtronic**	Medical Device Sales	• 10+ years' experience in medical sales • Co-founder and CEO of Tears for Life, a medical start-up • Medical sales channel knowledge and experience
Lucas K. Campbell, M.D. **Partner and President** **Northwest Arkansas Pathology**	Pathology Laboratories	• 11+ years' experience in the pathology industry • 4 years' experience on hospital committees • Purchases medical equipment for NWA Pathology
Paul Mlakar **Senior Executive** **Blackstone Construction, LLC**	Medical Start-ups	• 13+ years' experience in start-up, strategy, and improvement • Raised $3.3 million in start-up funding for medical start-up • Founded 4 companies • Operations Manager of construction start-up; increased sales from $6m to $50m in 4 years

Operating Strategies

Validation

In order to validate our technology, we will run six-month trials at three beta sites of various sizes: laboratories with high, medium, and low volume of biopsy specimens. We will first run dummy samples and then progress to discarded tissue samples before running tissue samples intended for diagnosis. After manufacturing, no additional cost will be incurred to run a beta site in the UAMS pathology laboratory due to their vested interest in the success of the venture. For the other sites, we will negotiate with the laboratories to find a suitable payment arrangement. Two possibilities are giving the laboratory equity in BioBotic Solutions and giving the laboratory a discounted rate on the BioBox for one to two years.

Production

After validation is complete, we will outsource manufacturing, distribution, and servicing of the PathOne system to minimize capital requirements. Multi-Craft Contractors has expressed interest in manufacturing the PathOne and has the capabilities to distribute and provide aftermarket service for the PathOne. We will provide our customers with a warranty, technical support, maintenance, inspections and upgrades for our system through BioBotic Support, which Multi-Craft will operate and manage. This service arrangement is typical within the industry.

To produce the BioBox, we will contract with a manufacturer, such as Fisherbrand, that has established distribution channels within the pathology industry. We will negotiate a supply agreement with the manufacturer.

Sales and Marketing Strategy

Our initial sales and marketing strategy is to target laboratories with a high volume of specimen samples (more than 40,000 biopsy samples annually) and those that are in regions with an acute labor shortage, such as the Western U.S. We also plan to focus on high-end laboratories that can become leaders and best-practice examples for new technology.

We will initially focus on the U.S. market, which accounts for the largest market share of lab automation equipment and consumables. Our next step will be an expansion into Canada, which has the same certification requirements as the United States. After gaining traction in

North America, we will open operations in the European and Australian markets, where laboratory automation is appealing due to stringent laboratory accreditation requirements.

After talking with pathologists and purchasing decision-makers in pathology labs, we have identified three key way to market our technology. First, we will raise product awareness at pathology conferences and trade shows and visit labs, where we will demonstrate our technology and expand our network within the industry. Second, we will conduct efficacy studies during the validation of the PathOne and publish the results in pathology trade journals, such as *Modern Pathology, Critical Values* and *AJCP*. Pathologists have told us this is critical in order to gain market acceptance. Finally, pathologists have told us that after our technology has been verified, it will spread by word-of-mouth. After our initial market penetration our management team will continue advertising, giving lab demonstrations, and exhibiting at trade shows.

In 2015 we will hire a Director of Sales and Marketing to lead our customer development process and increase market awareness as the PathOne finishes validation. The management team and director of sales and marketing will act as our sales force in 2016, when we project selling to our first five accounts. After this initial market acceptance, we plan to contract with a medical distributor to represent our product to labs. Medical distributors will have proven sales channels and preexisting relationships with the laboratories.

Research and Development

Our R&D team will seek to improve on our existing technology to make the grossing process more efficient. We will work on new solutions to improve the workflow in the pathology lab, such as a way to automate the decalcification process for bone marrow. We anticipate applying for both domestic and international patents for new intellectual property created in our labs, and have included patenting expenses under research and development in our financial projections.

Risk Management

As with any new company, risks must be anticipated and mitigation plans adopted. We have identified several risks that we may encounter and developed mitigation plans for each of them.

Table 5: Risk Management

Risk	Explanation	Threat Level	Impact Level
Market Adoption	Slow adoption	High	Moderate
Validation	System not validated	Low	High
Warranty	System requires frequent servicing	Low	High
Patent issuance	Patent still pending	Moderate	High
Competition	Established competitors	Moderate	Low
Political	Health care policy change	Low	Low
Financial	Yet to raise capital	Moderate	High
Management Team	Need to hire qualified management team	Moderate	High
Product	Additional development and validation of PathOne and BioBox needed	Low	High

Market Adoption

Pathology is typically the last sector of the healthcare industry to adopt change. Initial conversations with pathologists, however, have demonstrated that once we can show PathOne is reliable and efficient, pathologists are interested in bringing PathOne into their labs. In addition, the number of pathologists is forecasted to decrease significantly after 2014, resulting in an increased need for automation in the lab. Labor restrictions and stringent accreditation requirements in Europe make it likely that European laboratories will readily adopt our system[xxiii].

Validation

We will test the PathOne at three beta sites with varying sample volumes for six to twelve months and make necessary changes to optimize the reliability and effectiveness of the PathOne. We will use these beta sites to conduct exhaustive studies and collect data on the effectiveness and integrity of PathOne and publish these in trade journals. We will also work closely with these labs to make incremental improvements, ensuring a one year validation.

Warranty

To decrease the need for extensive servicing of our system, we will perform multiple pre-market tests to ensure that our system will stand up to the rigors of pathology laboratories, which often process hundreds of samples a day. In addition, validation will require that our system is durable. We will continue to run testing sites so we can continuously make and monitor changes to the PathOne. This will ensure that service fee paid to BioBotic support will cover costs associated with servicing and provide our manufacturer with profit.

Patent

We anticipate being awarded a patent for the BioBox. Invention Evaluator, an independent firm, examined the patent and gave it a favorable outlook. If the patent is not issued, we will establish and build upon our reputation as a low error system and be ahead of the market as a first mover. Later, to protect against patent expiration, we will invest in R&D to expand our patent and file for a utility patent by making continual improvements to our system, including how to expand the tasks covered by the system. In addition, we will build brand equity.

Competition

There are currently no direct competitors to PathOne, and Google searches have not turned up any competing technologies in the pipeline, as verified by Invention Evaluator. However, we realize that other companies like us might be trying to take advantage of this opportunity. We will initially target areas with a high need for automation and then build upon established relationships and brand equity to move into other areas. We will use our service team and our established reputation as a low error system as key selling points.

Political

The Affordable Care Act has resulted in a fifty-two percent decrease in reimbursement to pathology laboratories for the grossing of small biopsy specimens. The decreased funding makes our system more attractive. Another policy change could result in a higher reimbursement rate, but given the lack of political appetite to make more health care policy changes and the desire to cut government costs, this risk is low.

Financial

We are still seeking capital and will not be able to move forward with the product before finishing the development of our prototype. The funding we are currently seeking will be primarily used for prototype development.

Management

BioBotic Solutions is currently run by pathologist Dr. Sharma and a student management team; we fully anticipate bringing on an experienced executive and other managers as we validate our products. We will hire an experienced CEO in the medical and health care industry to provide leadership to the company and a Director of Sales and Marketing.

Product

PAA Automation and Multi-Craft Contractors, two potential manufacturers of the PathOne, have assured us that the PathOne can be manufactured easily, and Multi-Craft has agreed to do R&D on the PathOne and make necessary modifications to address the needs of both pathology laboratories and manufacturing. The BioBox has been developed by a team of biomedical engineers at the UA, and they have identified the necessary material for the inset biopsy bag and the tube. We will work closely with the manufacturers of both the BioBox and the PathOne to ensure feasibility and make alterations as needed. We will communicate any changes in the manufacturing of the BioBox or the PathOne that may affect the design of the other product with the appropriate manufacturer to ensure compatibility.

Sources and Uses of Funds

BioBotic Solutions is seeking a seed funding round of $400,000 from angel investors by May 2014 to finish prototype development and to hire a permanent CEO with experience in the medical device and pathology fields. UAMS will be a free beta site, and we will look to contract with two other labs of varying sizes to ensure rigorous product validation. By January 2015, we will seek a Series A round of $750,000 to fund customer development and sales and manufacture our initial units.

Table 6: Source and Uses of Funds

Sources and Uses of Funds	**Amount**
Seed Funding	***$400,000***
Patent Expenses	$20,000
PathOne Research & Design	$100,000
PathOne Development	$100,000
BioBox Development & Production	$14,000
Salaries and Wages	127,125
Other Employee Costs	$37,125
Series A Round	***$750,000***
PathOne Research and Development	$180,000
BioBox Production	$75,000
Installation & Integration	$30,000
Salaries & Wages with taxes	$210,750
Marketing and Customer Development	$12,000
Series B Round	***$1,000,000***
Round will be utilized to manufacture initial units and fund selling, general, & administrative expenses in 2016. Investment will be supplemented by income from initial sales to finance operating expenses.	

Table 7: Investment/Funding Rounds

Investment	Amount	Structure	Timing	Uses
Angel	$400,000	Convertible Debt	May 2014	Business & Product Development
Series A	$750,000	Preferred Equity	January 2015	Validation and Customer Development
Series B	$1,000,000	Preferred Equity	January 2016	Inventory and Market Penetration

Offering and Exit Strategy

BioBotic Solutions is currently seeking angel funding for our seed round of $400,000 to be structured as a convertible note. Interest on the note will compound annually at 8%, and the note will convert to preferred equity upon the event of a Series A round, predicted to be in January 2015. The note will convert at a 25% discount to compensate investors for the additional risk taken on by investing in an early stage venture, and the conversion will cap at a $4 million valuation. We will pursue Series B funding in January 2016. These funding rounds will be allocated to product validation and customer development and will be structured as preferred equity.

The state of Arkansas offers attractive incentives for investors in new, knowledge-based companies such as BioBotic Solutions. We will apply for approval for Equity Investment Tax Credits for Series A and B Investors. These credits give investors a 33% credit of the amount of their investment on their Arkansas state income taxes. For non-Arkansas investors, these credits can be sold. We will also seek state funding from the Risk Capital Matching Fund and in the form of R&D tax credits. We have not included funds from these sources in our financial statements, but they will reduce our investors' risk and lower capital requirements should we be approved for them.

After discounting projected revenues and comparing BioBotic Solutions to similar pre-revenue firms, we predict a pre-money valuation of $3 million for Series A and of $10 million for Series B funding rounds. Dr. Sharma, the inventor, will begin with 10% equity, and incremental distributions will be made to the management team based on performance and tenure, as outlined in management compensation. The equity of BioBotic Solutions will be

divided into 100,000 shares, and Table 4 summarizes our anticipated equity breakdown after all rounds of funding in January 2017.

Table 8: Projected Equity Distribution January, 2017

Party	Contribution	Percent Equity
UAMS	Patent	5%
Dr. Shree Sharma	Invention	10%
Management Team (combined)	Labor	12%
CEO	Labor	12%
Seed Investors	$400,000	18.6%
Series A	$750,000	25%
Series B	$1,000,000	10%
BioBotic Solutions	Retained	7.4%

Our primary exit strategy will be an acquisition by a large lab equipment manufacturing company after we have gained sales traction. It is common in this industry for smaller companies to be acquired after the market has accepted the technology. Some recent acquisitions of small lab equipment companies by large lab equipment manufacturing companies can be seen in Table 4. An alternative exit strategy would be to exit pre-revenue after Series A, but prior to Series B, at a projected valuation of $3 million, after the validation of our initial units. Becton Dickinson has indicated an interest in pursuing technologies in the validation stage and taking them to market. Although the returns for an earlier exit would be lower, a pre-revenue exit would give our investors a quicker return on their investment and reduce their risk.

Table 9: Recent Lab Equipment Company Acquisition

Company	Acquired	Price
Becton Dickinson	HandyLab	$275m
Roche	Constitution Medical, Inc.	$220m
Roche	Biolmagene	$100m

Assuming a discounted industry average P/E ratio of 8, we assume a valuation of 8x earnings in 2018 plus 2x future earnings under contract. Future earnings under contract are a result of the reagent rental agreement 5-year contracts. Revenue under contract was discounted at 20% to reflect the time value of money and an allowance for doubtful accounts and we assume, using a discounted industry average, that 15% of revenues will be retained as earnings.
With these assumptions, and those outlined in the Notes to Financials, BioBotic Solutions will be valued at $80 million at the start of 2019. An acquisition at this point would yield a 36x return for Seed Funding Investors, 26.5x return for Series A investors, and an 8x return for Series B investors.

Appendix I: Pro-Forma Financial Statements

Notes to Financials

1. Revenue numbers include sales of 40,000 BioBoxes per year to each of our customers at an average price of $5.00. Sales begin in 2016 with 5 laboratories. After partnering with a national sales force, sales will grow to 50 laboratories in 2017, and increase to 200 laboratories in year 2018.
2. FDA certification for a Class II device will fall under the 510(k) guidelines, and will be $4,328. The cost is incorporated into Research and Development in 2014.
3. UAMS will not receive royalties for sales of BioBox in the first three years of sale so that growth is not stifled. Instead they will retain 5% equity in BioBotic Solutions to compensate for patent usage.
4. Research and Development in 2014 increases in months when payments are made to our manufacturing partner for PathOne development. . R&D expense in 2015 accounts for production and delivery of three PathOne units to be tested at validation sites.
5. Based off of industry comparables, we assume manufacturing and distribution costs for the BioBox will be $2.18.
   Cost will decrease to $1.90 per Box as operations scale in 2017.
6. Amortization calculated straight-line over the 20-year life of the patent.
7. Accounts Payable assumes that 75% of payments are made in the current month, and 25% in the following month.
8. Accounts Receivable assumes that 60% of payments are received in the current month, 25% in the second month, and 15% in the third month. Billing will be on a contractual level, and doubtful accounts are considered to be irrelevant.
9. CEO will start with a salary of $150,000 and Management team at $25,000. As outlined in management compensation, these salaries are discounted and substituted with equity options. Director of Sales and Marketing will start at $150,000. All salaries are expected to increase at 7% annually. Salaries and wages do not increase at the scale of sales due to our sub-contracting of the sales force. Payroll Taxes are calculated as 7.65% of salary and wages. Benefits are calculated as 20% of salaries.
10. Office Equipment accounts for computers, phones and other general capital purchases associated with operations and bringing on new employees, and will depreciate over a 4 year useful life.
11. PathOne units for use in lab demonstrations and trade show expositions are held as fixed assets and are depreciated straight line over a 5-year useful life.
12. We estimate sales expenses of $100,000 in 2016 to compensate for travel and other customer acquisition costs. After 2016, we will partner with a large medical distributor with preexisting sales channels. We have allocated an additional 20% of total revenues to selling costs after partnering with a distributor which is represented in COGS. Additional costs are assumed to be in SG&A which is 10% of total revenues.

13. Annual payments to Multi-Craft, or selected PathOne manufacturer, are $20,000 per PathOne and accounted for in COGS. Service agreement fees are paid by the laboratory directly to the manufacturer, and will not affect our financial statements.
14. R&D expenses are calculated on industry average of 8.8%, plus 10% for the years 2016-2018.
15. Inventory is not carried by BioBotic Solutions. MultiCraft Contractors will hold the inventory for the PathOne, and we will pursue a supply agreement with manufacturer of BioBox.
16. Distributions of 33% of profits will be remitted to investors in April on years after profits are made so that members can make tax payments for the previous year.
17. Due to the nature of the reagent renal agreements, each contract with a laboratory will initiate a 5-year revenue stream, or $200,000/year, for the BioBoxes. The portion to be collected within the coming fiscal year moves to accounts receivable. These contracts will represent $192,000,000 in future revenues at the end of 2018. Because the funds have not yet been received, and the service has not yet been performed, this is an off balance sheet account, and accounted for in the balance sheet footnote.

Income Statement

BioBotic Solutions

Income Statement
For the Year Ending December 31, 2014

	May	June	July	August	September	October	November	December	YTD
Revenue									
Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cost of Goods Sold	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Profit	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Expenses									
Salaries & Wages	$ 14,063	$ 14,063	$ 14,063	$ 14,063	$ 14,063	$ 14,063	$ 14,063	$ 14,063	$ 112,500
Patent Expenses	$ 20,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 20,000
Office Equiptment	$ -	$ 10,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,000
Selling, Greneral & Administrative Exp	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Depreciation & Amortization Expense	$ -	$ 249	$ 249	$ 249	$ 249	$ 249	$ 249	$ 249	$ 1,743
Research & Development	$ 200	$ 40,000	$ 40,000	$ 2,000	$ 2,000	$ 2,000	$ 40,000	$ 40,000	$ 166,200
Misc. Expenses	$ 750	$ 750	$ 750	$ 750	$ 750	$ 750	$ 750	$ 750	$ 6,000
Benefits	$ 2,813	$ 2,813	$ 2,813	$ 2,813	$ 2,813	$ 2,813	$ 2,813	$ 2,813	$ 22,500
Payroll Taxes	$ 1,828	$ 1,828	$ 1,828	$ 1,828	$ 1,828	$ 1,828	$ 1,828	$ 1,828	$ 14,625
Total Operating Expenses	$ 39,653	$ 69,702	$ 59,702	$ 21,702	$ 21,702	$ 21,702	$ 59,702	$ 59,702	$ 353,568
Income From Operations	$ (39,653)	$ (69,702)	$ (59,702)	$ (21,702)	$ (21,702)	$ (21,702)	$ (59,702)	$ (59,702)	$ (353,568)
Interest Income (Expense)	$ (2,666.67)	$ (2,666.67)	$ (2,666.67)	$ (2,666.67)	$ (2,666.67)	$ (2,666.67)	$ (2,666.67)	$ (2,666.67)	$ (21,333)
Income Before Income Taxes	$ (42,320)	$ (72,369)	$ (62,369)	$ (24,369)	$ (24,369)	$ (24,369)	$ (62,369)	$ (62,369)	$ (374,901)
Net Income	**$ (42,320)**	**$ (72,369)**	**$ (62,369)**	**$ (24,369)**	**$ (24,369)**	**$ (24,369)**	**$ (62,369)**	**$ (62,369)**	**$ (374,901)**

BioBotic Solutions

Income Statement
For the Year Ending December 31, 2015

	January	February	March	April	May	June	YTD
Revenue							
Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cost of Goods Sold	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Profit	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Expenses							
Salaries & Wages	$ 20,833	$ 20,833	$ 20,833	$ 20,833	$ 20,833	$ 20,833	$ 125,000
Patent Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Selling, General & Administrative Expe	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Depreciation & Amortization Expense	$ 249	$ 249	$ 249	$ 249	$ 249	$ 249	$ 1,494
Research & Development	$ 80,000	$ 80,000	$ 80,000	$ 3,000	$ 3,000	$ 3,000	$ 249,000
Misc. Expenses	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 6,000
Benefits	$ 4,167	$ 4,167	$ 4,167	$ 4,167	$ 4,167	$ 4,167	$ 25,000
Payroll Taxes	$ 2,708	$ 2,708	$ 2,708	$ 2,708	$ 2,708	$ 2,708	$ 16,250
Total Operating Expenses	$ 108,957	$ 108,957	$ 108,957	$ 31,957	$ 31,957	$ 31,957	$ 422,744
Income From Operations	$ (108,957)	$ (108,957)	$ (108,957)	$ (31,957)	$ (31,957)	$ (31,957)	$ (422,744)
Interest Income (Expense)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Income Before Income Taxes	$ (108,957)	$ (108,957)	$ (108,957)	$ (31,957)	$ (31,957)	$ (31,957)	$ (422,744)
Net Income	**$ (108,957)**	**$ (108,957)**	**$ (108,957)**	**$ (31,957)**	**$ (31,957)**	**$ (31,957)**	**$ (422,744)**

BioBotic Solutions

Income Statement

For the Year Ending December 31, 2015

	Q1 & Q2	July	August	September	October	November	December	YTD
Revenue								
Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cost of Goods Sold	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Profit	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Expenses								
Salaries & Wages	$ 125,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 275,000
Patent Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office Expenses	$ -	$ 2,000	$ -	$ -	$ -	$ -	$ -	$ 2,000
Selling, General & Administrative Expe	$ -	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 12,000
Depreciation & Amortization Expense	$ 1,494	$ 263	$ 263	$ 263	$ 263	$ 263	$ 263	$ 3,072
Research & Development	$ 249,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 267,000
Misc. Expenses	$ 6,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 12,000
Benefits	$ 25,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 55,000
Payroll Taxes	$ 16,250	$ 3,250	$ 3,250	$ 3,250	$ 3,250	$ 3,250	$ 3,250	$ 35,750
Total Operating Expenses	$ 422,744	$ 41,513	$ 39,513	$ 39,513	$ 39,513	$ 39,513	$ 39,513	$ 661,822
Income From Operations	$ (422,744)	$ (41,513)	$ (39,513)	$ (39,513)	$ (39,513)	$ (39,513)	$ (39,513)	$ (661,822)
Interest Income (Expense)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Income Before Income Taxes	$ (422,744)	$ (41,513)	$ (39,513)	$ (39,513)	$ (39,513)	$ (39,513)	$ (39,513)	$ (661,822)
Net Income	**$ (422,744)**	**$ (41,513)**	**$ (39,513)**	**$ (39,513)**	**$ (39,513)**	**$ (39,513)**	**$ (39,513)**	**$ (661,822)**

BioBotic Solutions

Income Statement

For the Years Ending December 31

	2016	2017	2018
Laboratories Under Contract			
	5	50	200
Revenue			
Sales	$ 1,000,000	$ 10,000,000	$ 40,000,000
Cost of Goods Sold			
BioBox	$ 436,000	$ 3,800,000	$ 15,200,000
Distributor	$ 200,000	$ 2,000,000	$ 8,000,000
Multi-Craft Payments	$ 100,000	$ 1,000,000	$ 4,000,000
Gross Profit	$ 264,000	$ 3,200,000	$ 12,800,000
Operating Expenses			
Salaries & Wages	$ 390,000	$ 417,300	$ 446,511
Patent Expenses	$ -	$ -	$ -
Office Expenses	$ 5,000	$ 6,000	$ 7,200
Selling, General & Administrative Expe	$ 110,000	$ 1,100,000	$ 4,400,000
Depreciation & Amortization Expense	$ 39,640	$ 47,368	$ 56,642
Research & Development	$ 96,543	$ 965,433	$ 3,861,733
Misc. Expenses	$ 5,000	$ 50,000	$ 200,000
Benefits	$ 78,000	$ 83,460	$ 89,302
Payroll Taxes	$ 50,700	$ 54,249	$ 58,046
Total Operating Expenses	$ 774,883	$ 2,723,810	$ 9,119,435
Income From Operations	$ (510,883)	$ 476,190	$ 3,680,565
Interest Income (Expense)	$ -	$ -	$ -
Income Before Income Taxes	$ (510,883)	$ 476,190	$ 3,680,565
Net Income	**$ (510,883)**	**$ 476,190**	**$ 3,680,565**

Statement of Cash Flow

BioBotic Solutions

Statement of Cash Flows
For the Year Ending December 31, 2014

	May	June	July	August	September	October	November	December	YTD
Operating Activities									
Net Income	$ (42,320)	$ (72,369)	$ (62,369)	$ (24,369)	$ (24,369)	$ (24,369)	$ (62,369)	$ (62,369)	$ (374,901)
Add (Deduct) Non Cash Expenses									
Change in Accounts Payable	$ 10,580	$ 7,512	$ (2,500)	$ (9,500)	$ -	$ -	$ 9,500	$ -	$ 15,592
Change in Accounts Receivable	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Add Back Interest Expense	$ 2,667	$ 2,667	$ 2,667	$ 2,667	$ 2,667	$ 2,667	$ 2,667	$ 2,667	$ 21,333
Depreciation & Amortization Expense	$ -	$ 249	$ 249	$ 249	$ 249	$ 249	$ 249	$ 249	$ 1,743
Net Cash From Operations	$ (29,073)	$ (61,941)	$ (61,953)	$ (30,953)	$ (21,453)	$ (21,453)	$ (49,953)	$ (59,453)	$ (336,233)
Investing Activities									
Captial Expenditures	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Cash From Investments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Financing Activities									
Convertible Debt	$ 400,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 400,000
Preferred Equity	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Cash From Financing	$ 400,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 400,000
Beginning Balance	$ -	$ 370,927	$ 308,986	$ 247,033	$ 216,080	$ 194,627	$ 173,173	$ 123,220	$ -
Change	$ 370,927	$ (61,941)	$ (61,953)	$ (30,953)	$ (21,453)	$ (21,453)	$ (49,953)	$ (59,453)	$ 63,767
Ending Balance	**$ 370,927**	**$ 308,986**	**$ 247,033**	**$ 216,080**	**$ 194,627**	**$ 173,173**	**$ 123,220**	**$ 63,767**	**$ 63,767**

BioBotic Solutions

Statement of Cash Flows
For the Year Ending December 31, 2015

	January	February	March	April	May	June	YTD
Operating Activities							
Net Income	$ (108,957)	$ (108,957)	$ (108,957)	$ (31,957)	$ (31,957)	$ (31,957)	$ (422,744)
Add (Deduct) Non Cash Expenses							
Change in Accounts Payable	$ 11,647	$ -	$ -	$ (19,250)	$ -	$ -	$ (7,603)
Change in Accounts Receivable	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Depreciation Expense	$ 249	$ 249	$ 249	$ 249	$ 249	$ 249	$ 1,494
Net Cash From Operations	$ (97,061)	$ (108,708)	$ (108,708)	$ (50,958)	$ (31,708)	$ (31,708)	$ (428,853)
Investing Activities							
Captial Expenditures							$ -
Net Cash From Investments	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Financing Activities							
Convertible Debt	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Preferred Equity	$ 750,000	$ -	$ -	$ -	$ -	$ -	$ 750,000
Net Cash From Financing	$ 750,000	$ -	$ -	$ -	$ -	$ -	$ 750,000
Beginning Balance	$ 63,767	$ 716,706	$ 607,998	$ 499,289	$ 448,331	$ 416,623	$ 63,767
Change	$ 652,939	$ (108,708)	$ (108,708)	$ (50,958)	$ (31,708)	$ (31,708)	$ 321,147
Ending Balance	**$ 716,706**	**$ 607,998**	**$ 499,289**	**$ 448,331**	**$ 416,623**	**$ 384,914**	**$ 384,914**

BioBotic Solutions

Statement of Cash Flows
For the Year Ending December 31, 2015

	Q1 & Q2	July	August	September	October	November	December	YTD
Operating Activities								
Net Income	$ (422,744)	$ (41,513)	$ (39,513)	$ (39,513)	$ (39,513)	$ (39,513)	$ (39,513)	$ (661,822)
Add (Deduct) Non Cash Expenses	$ -							
Change in Accounts Payable	$ (7,603)	$ 2,389	$ (500)	$ -	$ -	$ -	$ -	$ (5,714)
Change in Accounts Receivable	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Depreciation & Amortization Expense	$ 1,494	$ 263	$ 263	$ 263	$ 263	$ 263	$ 263	$ 3,072
Net Cash From Operations	$ (428,853)	$ (38,861)	$ (39,750)	$ (39,250)	$ (39,250)	$ (39,250)	$ (39,250)	$ (664,464)
Investing Activities	0							
Captial Expenditures	$ -						$ -	$ -
Net Cash From Investments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Financing Activities	0							
Convertible Debt	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Preferred Equity	$ 750,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 750,000
Net Cash From Financing	$ 750,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 750,000
Beginning Balance	$ 63,767	$ 384,914	$ 346,053	$ 306,303	$ 267,053	$ 227,803	$ 188,553	$ 63,767
Change	$ 321,147	$ (38,861)	$ (39,750)	$ (39,250)	$ (39,250)	$ (39,250)	$ (39,250)	$ 85,536
Ending Balance	**$ 384,914**	**$ 346,053**	**$ 306,303**	**$ 267,053**	**$ 227,803**	**$ 188,553**	**$ 149,303**	**$ 149,303**

BioBotic Solutions

Statement of Cash Flows
For the Years Ending December 31

	2016	2017	2018
Operating Activities			
Net Income	$ (510,883)	$ 476,190	$ 3,680,565
Add (Deduct) Non Cash Expenses			
Change in Accounts Payable	$ 16,143	$ 40,603	$ 149,386
Change in Accounts Receivable	$ (33,333)	$ (366,667)	$ (1,700,000)
Depreciation & Amortization Expense	$ 39,640	$ 47,368	$ 56,642
Net Cash From Operations	$ (488,433)	$ 197,494	$ 2,186,593
Investing Activities			
Captial Expenditures	$ -	$ -	$ -
Net Cash From Investments	$ -	$ -	$ -
Financing Activities			
Convertible Debt	$ -	$ -	$ -
Preferred Equity	$ 1,000,000	$ -	$ -
Distributions	$ -	$ -	$ (1,214,587)
Net Cash From Financing	$ 1,000,000	$ -	$ (1,214,587)
Beginning Balance	$ 149,303	$ 660,870	$ 858,364
Change	$ 511,567	$ 197,494	$ 972,006
Ending Balance	**$ 660,870**	**$ 858,364**	**$ 1,830,370**

Balance Sheet

BioBotic Solutions

Balance Sheet

For the Periods Ending on December 31st of Each Year

	2014	2015	2016	2017	2018
Assets					
Current Assets					
Cash	$ 63,767	$ 149,303	$ 660,870	$ 858,364	$ 1,830,370
Accounts Receivable			$ 41,667	$ 416,667	$ 1,666,667
Total Current Assets	$ 63,767	$ 149,303	$ 702,537	$ 1,275,030	$ 3,497,036
Longterm Assets					
Property, Plant & Equipment	$ 110,000	$ 322,000	$ 386,400	$ 463,680	$ 556,416
Less Depreciation	$ (1,743)	$ (3,072)	$ (39,640)	$ (47,368)	$ (56,642)
Net PP&E	$ 108,257	$ 318,928	$ 346,760	$ 416,312	$ 499,774
Total Fixed Assets	$ 108,257	$ 318,928	$ 346,760	$ 416,312	$ 499,774
Total Assets	**$ 172,024**	**$ 468,231**	**$ 1,049,297**	**$ 1,691,342**	**$ 3,996,811**
Liabilities & Equity					
Current Liabilities					
Accounts Payable	$ 7,366	$ 13,788	$ 16,143	$ 56,746	$ 189,988
Total Current Liabilities	$ 7,366	$ 13,788	$ 16,143	$ 56,746	$ 189,988
Long Term Liabilities					
Notes Payable	$ 418,667				
Total Long Term Liabilities	$ 418,667	$ -	$ -	$ -	$ -
Total Liabilities	$ 426,033	$ 13,788	$ 16,143	$ 56,746	$ 189,988
Equity					
Paid-In Capital		$ 1,168,667	$ 2,168,667	$ 2,168,667	$ 2,168,667
Retained Earnings	$ (254,008)	$ (714,223)	$ (1,135,513)	$ (534,070)	$ 1,638,156
Total Equity	$ (254,008)	$ 454,443	$ 1,033,153	$ 1,634,596	$ 3,806,822
Total Liabilities & Equity	**$ 172,024**	**$ 468,231**	**$ 1,049,297**	**$ 1,691,342**	**$ 3,996,811**

Off balance sheet account of future revenues under contract are $4 million in 2016, $43 million in 2017, and $192 million in 2018.

Appendix II: A Perfect Pattern Match

"Pattern Match." It's more than just a buzz word. Through the art of pattern matching, and a lot of hard work, BioBotic Solutions was able to represent the University of Arkansas in achieving unprecedented success in undergraduate business plan competitions. This truly is an *art*, as it challenges the entrepreneur with a new, creative idea, to communicate it in terms that their audience, whether a customer or investor, is comfortable with and can understand. For one, people don't always respond well to change, and most important, if it has worked well before it will likely work well again.

The first step in effective pattern matching is to really understand your customer, and uncover all relevant industry information. It is important to know how disruptive your new technology is within the industry, and likewise, what are the most effective ways to incorporate your solution into the industry to optimize rather than disrupt the current work flow? Most importantly, what will make your customers most comfortable with purchasing your product? After identifying the best practices within the industry, the entrepreneur is charged with the task of communicating this to investors, who often are not familiar with the industry. We must communicate this new idea with investors in terms that they understand so they are able to clearly see the viability and investability of the business. If the idea is sound and communicated effectively, the probability of a successful venture begins to increase exponentially.

One area in particular that we learned all aspects of the perfect pattern match was with our ever-evolving business model. We eventually concluded on using "reagent rental agreements" as our most effective strategy, which is essentially the "razor and blades" method (see what I did there? – that was a pattern match). Initially we structured our business model around a markup on the robotic equipment, and assumed the containers would be sold for pennies on the dollar. After pitching to investors who were confused as to where and how we would be making money, and receiving push-back from pathology laboratories, the business model was revisited. We found that pathology laboratories are hesitant to make large capital purchases due to their budgetary constraints and rapid advancements in technology within the industry. They are more comfortable spreading the cost over a number of years into their operating cash flows, and aren't as concerned about owning the equipment. We were then tasked with incorporating this new information into our strategy, and communicating it with all parties.

We researched the reagent rental agreements, and they began to make sense. We would place the equipment in the laboratory at no cost to the lab. Then we determine how many of our containers that they would purchase per year, and set the price of the containers at a level that we can recover the cost of the robotic equipment, manufacturing and delivery of the containers, and retain a sufficient level of profits. This allowed us to better identify our initial target market, communicate to them where and how much money they will save, and we had structured our pricing strategy in a manner that they were most comfortable with. This was a win – win solution for both our company and our customers, now we needed to communicate it with the investors.

This business model was somewhat complex, as we now had many players involved. Manufacturers for both the container and the robotic equipment and the container, a potential leasing partner, the laboratory and in some cases more were involved. Although the pathology laboratories were familiar with this model, most of our audience had never heard of a "reagent rental agreement," and we struggled to communicate what we thought was a fantastic idea. We eventually realized, with the help of our brilliant advisors, that although the vocabulary might be new, the idea has been around since Xerox made huge profits by discounting printer sales and charging a markup for copies in the 90's. Once we began to communicate this idea as "the Xerox method" or "the razor and blades method" we never had to worry about it as a friction point with investors or critics.

The first step is having an idea, and it is crucial to do sufficient customer development, problem interviews and market research. Once that has been achieved it will be easier to tell whether or not your idea really solves a problem (if you can't tell, then do more research). After establishing that you have a viable venture, communication is the most important step in progressing forward. We have found that the most effective way of communication is to meet people where they are, and speak in terms and ideas that they will understand. That is the art of the pattern match.

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