Karen West:

What I submitted for the final report Entrepreneur class – Nov. 19, 2014:

Assignment Objective

The purpose of this assignment is to provide an opportunity to apply the concepts and frameworks discussed in class to a real context relevant to you and your entrepreneurial ecosystem. The project will require you to do independent research and, using the data and information that you gather, draw on skills and concepts learned during the course.

Use what you have learned from the lectures, discussion forums, and readings throughout the course to inform your analysis of your own regional entrepreneurial ecosystem.

Guidelines:

Note: All assignments must be submitted in English. Please prepare and submit an analysis of the current competitive position of your regional ecosystem and how well it is facilitating entrepreneurial growth.

Address in your analysis the presence or lack of the components we have covered in this course. Describe your recommendations for ways that government and philanthropy should be engaging local entrepreneurs to grow that economy. Your report will be evaluated on the depth and breadth of your analysis and clarity of recommendations as to how your chosen ecosystem might be improved. Your recommendations should be supported by your analysis and provide facts and data whenever possible.

To view the grading criteria for each component of this assignment, read the Final Project Peer Review Guidelines.

Answer each of the following sections separately. We encourage you to write each answer in the Final Project Template before submitting to ensure you don't lose any of your work.

Part 1: Describe the Entrepreneur (3 total points possible): Describe a chosen local entrepreneur (this could be you or someone else). You are welcome to use the material you developed in your Midterm ALA for this part. It should include:

Who they are

Their company's short history, mission, products and services

My Answer:

Entrepreneur Interviews and Analysis: 2 from Boston, MA, 2 from Silicon Valley, CA, 1 from Providence, RI, and 3 from Albany, NY:

I interviewed 8 entrepreneurs but I will just share the first one from my local Boston entrepreneur ecosystem. I would love to share the other 7, since I learned so much from them too, but that would take up too much space and I answered the questions based on this first entrepreneur for this final report.

ENTREPRENEUR INTERVIEW – John Koger, formerly of Oasis Semiconductor, Boston,MA,USA – the most detailed interview:

The entrepreneur interview I am sharing is within my local to Boston, MA, USA ecosystem, and I

worked for his company, Oasis Semiconductor, from 2002-2004, in Waltham,MA. In 1995, John Koger asked his colleague, Brendan Mullally to be his graphics and image processing chip designer at a new start up company. John used to work in Digital Equipment Corporation's graphics chip design group and had decided he wanted to form his own start up company. John's good friend since elementary school in Weston,MA, Will Wrenn, was the initial financer of the start-up, and provided them \$300,000 to get started in 1995. Although you wear "many hats" at a small start up company, John took on the initial role of marketing and sales, while Brendan was the designer. They had both worked together at DEC on graphics multimedia chips in Hudson,MA. (I worked at DEC too, but in the networks group in Littleton,MA, from 1987-1992, but did not know these people in the Hudson group until I met them many years later, when I joined Oasis as their 25th employee in May 2002).

Here was the idea behind their company's mission. Many companies at that time, such as ATI which is now part of AMD, Tseng Labs (1980's), and others in the graphics chip market had decided that their mission was to sell their graphics chips to all companies. At DEC, the philosophy had been that they made their own chips and incorporated them into their own products, but John had observed that there was a new trend happening where the above mentioned graphics chip companies were supplying many different companies who made computers that used graphics chips. John's idea was to make a graphics chip that supplied the office equipment space as a focus.

Initially John made many trips across the Pacific to make sure they were going in a direction that the office equipment companies would be interested in, and companies such as Konica Minoltaq, Panasonic, Rico, Sharp and Xerox were all quite interested in buying his chip. John had presented to them that his company would be able to make the chip for them at a much cheaper cost and a lower risk than what they were currently paying, and later John also included the software to go with the chip. The software was really rolled up in the price of the chip, since for accounting purposes, it's much easier to track the number of chips sold, and customers could take the software provided with it, and make as many copies of it as they needed to make, so it was not trackable.

The idea of the business was to take a vertical market, a market such as he and Brendan worked in at DEC, a proprietary market where the company made all the chips, software, and boards for computers for themselves, and cut across this vertical organization into a more horizontal market. For example, Dell Computer is more of a horizontal market, in that they contracted chips, boards, and software which allowed them to take advantage of the "economies of scale", and consequently their costs as a company were lower than DEC's. So John's idea was to be able to supply all customers and companies interested in buying a graphics chip in the office equipment market. That was their mission.

In terms of support after the chips were sold to customers, that was minimal, except for just after initial sales and delivery to the customer. They provided the chip and eventually also the software to go with it.

Part 2: Describe the Ecosystem (8 total points possible): Describe how this entrepreneur utilized the resources in their ecosystem to grow their company and what could have helped this entrepreneur grow their company even more effectively. Include a discussion of the presence or absence of at least some of the following components:

Government
Philanthropy
Anchor institutions
Intermediary institutions

Seed Accelerators Angel Investors Venture Capital

My Answer:

In terms of Oasis Semiconductor's ecosystem of resources, initially it was a friend's belief in his success that invested in their start up, Will Wrenn. There were also a few angel investors as time went on, other people who made personal investments and no venture capital firm funds were needed at the time. The angel investments had "fewer strings attached" in that they are usually people who know you quite well at your company's start up and believe you will succeed with their investment. After this type of angel investment, venture capital may have made sense for their company, but they did not end up seeking it, because what happened was that there were office equipment market companies showing an interest in their chip and gave Oasis a 50% payment in advance for their chip. The reason they did not also seek venture capital investment was because often times, venture capitalists are not interested when a product is already on the market with customers paying for the product. They had no philanthropic, anchor institution, government, intermediary, seed accelerator, venture capital, and got started with friend and family contributions, which fall in the angel investment category, but not an official group of them, just some friends and family that believed in them from their local area.

Part 3: Describe the Challenges (5 total points possible): Describe the challenges that this entrepreneur faced. It should include:

The accessibility of funding for scale (rather than a market analysis of the products or companies themselves)

Assess the key strategic challenges and tradeoffs that the entrepreneur faced.

My Answer:

The challenges that John initially faced with Oasis in the beginning was that they were a company of 3-5 people for several years. In that type of small start up, the challenge is convincing giant corporations like Sharp to have confidence in them, because they were so small. It helped that they were a fab-less company, and instead asked companies such as Samsung, Agere (an old spin off from AT&T), and UMC (United Microelectronic Corporation in Taiwan) fabricate their chips for them. The reason this was helpful in building larger company confidence was because if their start up disintegrated, the large companies, such as Sharp, had a "license to buy directly from Samsung (or the others)" in the event that the start up disappeared. So that gave the large company customers the confidence they needed to buy the graphics chips from Oasis without worry of the company going away.

Other challenges were the tradeoffs you make for the next generation of graphics chips. The sales team hears from the customers a list of software and hardware features the customer wants for their next generation product. The challenge is what is realistically doable within the engineer's schedules to incorporate these new features and the cost to incorporate the new features in the new graphics chip and software product definition. The saying goes that if you take any of the three tradeoffs (feature, schedule and cost), if you take 2 of them and incorporate them, the 3rd tradeoff suffers. Planning this successfully was an on-going challenge.

Part 4: Describe the Opportunities (5 total points possible): Describe the unique opportunities that this entrepreneur experienced. It should include:

Elements that enabled company growth

Supports that were available to help them succeed

My Answer:

Oasis Semiconductor's opportunities originally came by making graphics chips without software for the copy machine market of office equipment customers. These customers had other vendors where they bought other chips to do the other functions that the office equipment sometimes do in an all-in-one printer, scanner, copier, fax machine, and initially they only bought the copy machine graphics chip from Oasis Semiconductor. Oasis then saw an opportunity to make a multi-function-peripheral (MFP), which incorporated all the printer, scanner, copier fax machine chip functions onto one chip. This was a big success for them, since it made the cost of buying chips cheaper for their office equipment customers and they only had to buy from Oasis, not 4 different chip vendors for each function. This also made their purchase of circuit boards cheaper, and the manufacturing of the product cheaper as well. For example, the first HP low end ink jet printer cost them \$1000, but within 4 years, the cost went down to \$99 for reasons such as this.

Part 5: Describe Measures of Success (4 total points possible): Describe what success looks like to these entrepreneurs. It should include:

How they measure success Who the beneficiaries of success are.

My Answer:

The way that John measured the success of Oasis Semiconductor was that he had a lot of fun making his start up successful which is important in life, but as a bonus, he was able to sell the company in 2005 for 70 million dollars in cash (not stock). They were planning an initial pubic offering (IPO) as their exit event as a start up whose stock could trade publicly, but just when that was going forward, there was a glitch in sales, and a year later, SigmaTel, a former Texas audio company, bought them with the idea that they would incorporate their audio chip with Oasis's graphics chip. This made the first dozen people who started Oasis instant millionaires. John explained that each time you double the company size, stock options halve. Usually you can estimate that when a company is bought, the first round of employees (3-4 of them) will get 5-10% of that 70 million dollars, the next 5 people get about 5%, the next 10 employees get about 1%, and the next 20 or so get a half-percent of the purchase price with their stock options.

John then explained that they were funded by angel investors, not venture capital. If they had been funded by venture capital firms, the salaries of the employees would have been higher but they would have been given less stock options, but the venture capital firm provides more money for start up equipment. With the angel funding Oasis received, the salaries of their employees were lower, and they had less for their start up equipment, but the employees received more stock options that were worth something when the company was bought.

To end this story about Oasis Semiconductor, it is no longer owned by SigmaTel, the Texas audio company that had bought them in 2005, when their Wall Street Bankers told them the should invest in the graphics chip business of Oasis to add to their audio chip business. What happened was that SigmaTel then lost their Apple ipod business 2 months after the purchase of Oasis, so they could no longer go forward with their plans to create a synergy between their audio chips with Oasis's graphics chips. SigmaTel went into panic mode and put all their effort into their audio chips but the business collapsed and was sold to Conexant who did not keep the collapsed audio chip business, but they did keep Oasis as their graphics chip business, since Oasis had proven they were profitable to them.

John said that the benefits to society from his Oasis Semiconductor business was that the printer cost dropped, helping every day people better afford all-in-one printer/scanner/copier/fax machines. John said for perhaps 130 people that were employed and working at Oasis Semiconductor, each one of their graphics chip and software office equipment customers each employed perhaps 100-1000 people, and their manufacturing clients each employed 5-10,000 people to manufacture their chips. So the employment of people also benefited society.

Part 6: Describe Your Recommendations (10 total points possible): Describe one or two new resources or improvements to existing entrepreneurial resources that should be available to entrepreneurs like the one you described earlier. It should include:

Proposition of new resources or improvements to existing resources that should be implemented. Description of the need for these improvements. Connect this to the earlier given assessment of the entrepreneurial ecosystem.

Description of the benefits that these improvements would provide to the greater entrepreneurial ecosystem or economy.

My Answer:

Resource improvements could be made in all the businesses of the entrepreneurs with whom I interviewed, and here I focused on my entrepreneur for Oasis Semiconductor in my local to Boston ecosystem, although I did interview 7 others as well. Oasis did not use any philanthropic or government resources to start their business, so those could be used to improve their already successful business. I know some though feel uncomfortable with government involvement and obligation in their private business, as described in our lecture videos, but these are great resources that could be used. The philanthropic resources in Boston alone (The Boston Foundation) seem to focus on areas that could most benefit our ecosystem, and if your business involved that area, that could benefit both your business and others where there is a need in the economic system of Boston.

So the one or two new resources or improvements to existing entrepreneurial resources that should be available to entrepreneurs like John Koger, from Oasis Semiconductor, would be the Boston Foundation's resources and the benefits from the legislation that our current Governor, Deval Patrick made in August 2014. Oasis would be able to take advantage of the legislation that said: "An Act To Promote Economic Growth in the Commonwealth," building on the Patrick Administration's successful economic development strategy of investing in education, innovation and infrastructure. The economic development package provides new tools and training to ensure the Massachusetts workforce meets the needs of employers, invests in our Gateway Cities to promote development across the entire state and provides incentives to create jobs and stimulate the economy. Excerpts from this legislation that could directly benefit the start up would be:

"An Act To Promote Economic Growth in the Commonwealth," bolsters the economic revitalization of the Commonwealth's Gateway Cities with \$15 million for the Gateway Cities Transformative Development Fund and encourages the reuse of brownfields in economically distressed areas of Massachusetts with \$10 million in funding.

"This legislation makes many targeted investments in our emerging industries, like Big Data and advanced manufacturing, that are necessary to create a competitive environment here in Massachusetts and grow our status as a leader in the world economy," said Senate President Therese Murray. "By capitalizing on our state's existing and developing industries, as well as investing in a strong, educated

workforce, we are outlining a path to success for our residents and promoting economic development throughout the entire Commonwealth."

"This comprehensive bill will help ensure that residents, businesses and communities are able to compete and excel in a dynamic economy," said House Speaker Robert A. DeLeo. "We've made substantial gains in strengthening our economy and must now focus on broadening the circle of prosperity beyond Greater Boston to all regions of the Commonwealth. This bill does just that while preparing future leaders through provisions like MassCAN, a computer science education partnership and the Talent Pipeline Initiative."

Building on a strong record of growth in the state's world-class innovation economy, the economic development package also adopts Governor Patrick's proposal to create a pilot Global Entrepreneur in Residence Program to retain and attract entrepreneurs who are growing companies and creating jobs in the state. The program will be piloted at the University of Massachusetts Boston and the University of Massachusetts Lowell and will allow qualified, highly skilled, international students currently in Massachusetts to stay here after graduation if they are starting or growing a business and contributing to the local economy.

"This bill provides significant new support for the Commonwealth's economic development strategy," said Housing and Economic Development Secretary Greg Bialecki. "Ensuring the long-term economic prosperity of the Commonwealth means extending growth and opportunity to every corner of the state."

In the area of workforce development and training, the Act includes \$12 million for the middle skills job training grant fund to support advanced manufacturing, mechanical and technical skills at vocational-technical schools and community colleges. Also, the Workforce Competitiveness Trust Fund will receive \$1.5 million to prepare Massachusetts residents for new jobs in high-demand occupations, helping close the middle-skills gap and creating a seamless pathway to employment.

The economic development legislation also includes a number of initiatives to expand the Commonwealth's world class innovation economy including \$2 million for a Big Data Innovation and Workforce Fund to promote the use of big data, open data and analytics, and \$2 million for the Innovation Institute Fund at the Massachusetts Technology Collaborative (MTC).

The legislation also creates a \$1 million talent pipeline program that will provide matching grants aimed at increasing technology and innovation internships, and another \$1 million for a start-up mentoring program to connect early-stage entrepreneurs, technology startups and small business with experienced business enterprises and capital financing.

"This package tackles three key areas important to driving job creation," said Karen Mills, former Administrator of the U.S. Small Business Administration and Senior Fellow at Harvard Business School. "It expands opportunities for small businesses to get the capital they need to grow. It invests in helping workers gain skills in critical sectors important to the state's future. And, it strengthens ecosystems to encourage and support entrepreneurship. This is a great example of leaders in the public and private sectors coming together around a playbook for growing our economy and creating goodpaying jobs."

This legislation establishes a financial services advisory council to exchange ideas and develop strategies for business and government to work together to strengthen the Commonwealth's financial

services industry. It creates a job creation incentive under the Economic Development Incentive Program (EDIP), allowing business to receive a tax credit up to \$1,000 per job created, or up to \$5,000 per job created in a Gateway City, so long as the total credit per project does not exceed \$1 million.

Governor Patrick also returned back for amendment two other provisions of the bill requiring a study of the "angel investor" tax credit and requiring telephone counseling rather than delaying for two years the requirement for counseling new mortgage holders.

I think the above mentioned excerpts from this recent MA legislation shows the government's efforts to support new businesses that take advantage of these things in our state.

Specifically for the Boston area, if your business involved vital issues facing the Boston community, a proposition of new resource would be the Boston Foundation. The need for these improvements are to support in the Boston area: non-profits across a wide range of issues, guided by a focus on people and place, with a strategic focus on Education to Career, Health and Wellness, Jobs and Housing, Community Safety, and Civic and Cultural Vibrancy. The Foundation also works to strengthen nonprofits and leaders. The benefit these improvements would provide to the Boston entrepreneurial ecosystem and economy would be things such as with John Koger from Oasis Semiconductor, designing an all-in-one printer/scanner/copier/fax machine for one of the above listed communities, funded by the Boston Foundation. The benefits of this improvement to the greater entrepreneurial ecosystem and Boston economy is that it would be a product to help one of the philanthropic initiatives that the Boston Foundation has identified as something good for the Boston economy, whether it is funding from the focus on people and place, with a strategic focus on Education to Career, Health and Wellness, Jobs and Housing, Community Safety, Civic and Cultural Vibrancy, non-profits and leaders. All of Oasis's customers were large manufacturers of the all-in-one printer/scanner/copier/fax machine, and perhaps if they received funding for a different philanthropic need, they could produce one that also had a philanthropic purpose for Boston.

One other way would be to involve an anchor institution. My cousin's husband who lives in San Jose, CA, started a business in Boston out of a Boston University as their anchor institution and they received funding and mentoring from the BU project to start this business. If Oasis wanted to perhaps incorporate something at the research level into their product, they could do so this way, get involved with a researcher and if selected, receive the anchor institution involvement for incorporating it into a business. I've seen other businesses in Boston get started and influenced by a university as their anchor, iRobot from MIT, and even my other cousin, who started a consulting business out of Brown University's Filemaker Pro designs she did for them. So I know that anchor institutions can influence businesses in a positive way too, perhaps receiving something that is cutting edge research in design suddenly incorporated into a product line. So perhaps a start up such as Oasis could have investigated that path too to supplement the business they had started. That would benefit both the university and the start up in reputation.

Part 7: Describe the Roles of Government and Philanthropy (10 total points possible): Describe the key roles of government and philanthropic stakeholders who would be involved in implementing these improvements. Examine the following:

Key challenges and opportunities that you anticipate local, regional, or national government stakeholders might experience in implementing these recommendations.

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My Answer:

Key Challenges and Opportunities of Boston area Government: August 13, 2014 our current Governor, Deval Patrick, announced and signed H.4377 "An Act To Promote Economic Growth in the Commonwealth," building on the Patrick Administration's successful economic development strategy of investing in education, innovation and infrastructure. The economic development package provides new tools and training to ensure the Massachusetts workforce meets the needs of employers, invests in our Gateway Cities to promote development across the entire state and provides incentives to create jobs and stimulate the economy. There are other government contributors to business too, such as the National Science Foundation, at the federal level. Gaining their funding is competitive and can be a frustrating experience as well, but if you get the reward, it is often good. They have panels of people who review whom is most deserving of awards at the federal level, so perhaps the same is true in the state government level.

Other details on the Role of Government in Start Up Cultures in Boston, MA Area:

Recently they dedicated city space on the water front just for start ups called the "Innovation District". There is a "Mass. Challenge" where innovators present their technical product to compete for funding, but looking at the list of contributors, there were many more private sector companies that contributed than government contributors, but the Massachusetts government did contribute to this and was listed, along with the National Science Foundation which is funding from a federal rather than state level. It does not go into details about where the funding comes from, such as the amount the government may have contributed to the start-up verses private sector funding.

Key Challenges and Opportunities of Boston area Philanthropy and Start up Initiatives: The Boston Foundation (recently merged with TPI, The Philanthropic Initiative) are: "The Philanthropists, The Visionaries, The Social Entrepreneurs, and some of them are all three of these things. They look at problems and see nothing but opportunities. They never walk away from a problem and are never satisfied with the status-quo. They are healers, educators, and community leaders. They are the change-makers. They are people crazy enough to think they can change the world and they are the ones who do." The Boston Foundation combines their donors aspirations and passions for giving with their deep understanding of the vital issues facing the Boston community.

The Boston Foundation combines their donors aspirations and passions for giving with their deep understanding of the vital issues facing the Boston community. The "Donor Advised Funds" are able to fund grants anywhere in the US or abroad and operate like a private foundation, without the administrative or payout burdens. There are other funds that invest in the future of greater Boston, and the issues and organizations that have profound impact on their lives, through gifts or bequests to the "Permanent Fund for Boston". When the Boston Foundation merged recently with The Philanthropic Initiative, they added to their capacity to advise donors to engage in strategic and effective philanthropy in Boston and around the world. So far they have 3 web sites to support these efforts. For an in-depth look at The Boston Foundation's work, you can go to tbf.org. The web site: bostonindicators.org gives unprecedented information and analysis on the greatest opportunities and challenges that Boston and this region in general face. The web site: givingcommon.org is the place to go for informed giving in Massachusetts.

Through grant making and special initiatives in greater Boston, The Boston Foundation supports non-profits across a wide range of issues, guided by a focus on people and place, with a strategic focus on Education to Career, Health and Wellness, Jobs and Housing, Community Safety, and Civic and Cultural Vibrancy. The Foundation also works to strengthen non-profits and leaders through a range of work designed to enhance the long-term vitality of the Massachusetts non-profit sector. They build

effectiveness through the "Vision Fund" and the "Institute for non-profit management and leadership" at Boston University. They encourage collaboration through the "Catalyst Fund for Non-Profits" and "Collaborate Boston." They strengthen the entire non-profit sector by research and advocacy.

They have a "Civic Leadership Fund" that has been successful in the areas of: K-12 and higher education, workforce development, health, housing, cultural facilities, municipal finance, and other critical areas such as: cutting edge research, major forums and convenings, strategic and proactive grant making, task forces and coalitions, communications and media, and deep public policy work. The "Understanding Boston" series identifies challenges facing our city and region, commissions fresh research, and shares information through a series of forums that are attended by thousands of people every year. The "Boston Indicators Project" provides comprehensive information and analysis about every aspect of life in greater Boston and our region through a cutting edge web site and biennial bold reports.

They quote Robert F. Kennedy who said, "The Future does not belong to those who are content with today."

So to conclude, "The Boston Foundation" sounds analogous to "The Fund For Economic Future" in Cleveland, but with a Boston twist to it, that also includes the US and abroad initiatives as well.

So if a Boston entrepreneur can find a way that their business overlaps with these "philanthropic initiatives", they could benefit from these investments and resources here too.

More details on the August 13, 2014 Massachusetts legislation to demonstrate in detail support of start up's in our state:

In the article dated August 13, 2014, that our current Governor, Deval Patrick, announced and signed H.4377 "An Act To Promote Economic Growth in the Commonwealth," building on the Patrick Administration's successful economic development strategy of investing in education, innovation and infrastructure. The economic development package provides new tools and training to ensure the Massachusetts workforce meets the needs of employers, invests in our Gateway Cities to promote development across the entire state and provides incentives to create jobs and stimulate the economy. The following efforts were made with this legislation from our state government.

Governor Patrick re-filed legislation that limits the use of non-compete agreements and adopts the Uniform Trade Secrets Act to ensure that government acts to retain talented entrepreneurs, supports individual career growth and encourages the development of new, innovative businesses to drive future economic growth. The legislation also includes a provision to give local governments across Massachusetts control over the number of liquor licenses in their jurisdiction. Placing the authority to approve liquor licenses in the hands of municipal officials will allow local communities to make responsible decisions regarding their economic development and growth and free the Legislature from time-consuming local issues.

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advanced manufacturing, that are necessary to create a competitive environment here in Massachusetts and grow our status as a leader in the world economy," said Senate President Therese Murray. "By capitalizing on our state's existing and developing industries, as well as investing in a strong, educated workforce, we are outlining a path to success for our residents and promoting economic development throughout the entire Commonwealth."

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Building on a strong record of growth in the state's world-class innovation economy, the economic development package also adopts Governor Patrick's proposal to create a pilot Global Entrepreneur in Residence Program to retain and attract entrepreneurs who are growing companies and creating jobs in the state. The program will be piloted at the University of Massachusetts Boston and the University of Massachusetts Lowell and will allow qualified, highly skilled, international students currently in Massachusetts to stay here after graduation if they are starting or growing a business and contributing to the local economy.

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A separate provision increases the Housing Development Incentive Program's (HDIP) annual cap from \$5 million to \$10 million over the next four years, and allows larger developments to qualify by eliminating the 50-market-rate unit per project cap. The expansion of the HDIP will provide residents of Gateway Cities with increased access to market-rate as well as affordable housing.

This legislation establishes a financial services advisory council to exchange ideas and develop strategies for business and government to work together to strengthen the Commonwealth's financial services industry. It creates a job creation incentive under the Economic Development Incentive Program (EDIP), allowing business to receive a tax credit up to \$1,000 per job created, or up to \$5,000 per job created in a Gateway City, so long as the total credit per project does not exceed \$1 million.

Governor Patrick also returned back for amendment two other provisions of the bill requiring a study of the "angel investor" tax credit and requiring telephone counseling rather than delaying for two years the requirement for counseling new mortgage holders.

Some entrepreneurs do not like the government getting involved for various reasons that they find frustrating, and they may not think that their business overlaps with the philanthropic initiatives, but if they investigate further, it may.

Part 8: Describe other Roles and Stakeholders (5 total points possible): Describe other key roles of stakeholders in the entrepreneurial ecosystem who might be involved in implementing these improvements. Examine any of the following:

Anchor institutions
Intermediary institutions
Seed Accelerators
Angel Investors
Venture Capital
Additional support systems or stakeholders

My Answer:

Other key roles of stakeholders in the Boston entrepreneurial ecosystem who might be involved in implementing these improvements: Anchor institutions, Intermediary institutions, Seed Accelerators, Angel Investors, Venture Capital – details listed here - web sites in Boston where these resources can be found - these are all "other key roles of stakeholders in the entrepreneurial ecosystem of Boston, who may be involved with implementing improvements".

I found a list of "MTTC (Mass. Tech. Transfer Center)" places for "intermediary institutions for entrepreneurs in the Boston area" on the Mass. Technology Transfer Center Web Site. This long list includes all aspects and resources for starting businesses in the Boston area.

The Web has many resources for entrepreneurs thinking of starting new technology-based companies. Below are links to sites that MTTC staff and advisors have found helpful. Many are provided by nonprofits and offer free information. Others are managed by for-profit corporations providing services on a fee basis, in addition to offering free information.

Organizations for Entrepreneurs MIT Enterprise Forum

The MIT Enterprise Forum, Inc. builds connections to technology entrepreneurs and to the communities in which they reside.

MIT Enterprise Forum of Cambridge

The MIT Enterprise Forum of Cambridge mission is to promote and strengthen the process of starting and growing innovative and technology-oriented companies by providing services and programs that educate, inform, and support the entrepreneurial community.

National Collegiate Inventors and Innovators Alliance (NCIIA)

Supporting technology innovation and entrepreneurship in higher education to create experiential learning opportunities for students and successful, socially beneficial businesses.

Women Entrepreneurs in Science and Technology (WEST)

WEST is a nonprofit organization for women in science and technology who are existing entrepreneurs, aspiring entrepreneurs, and those who want to become innovative leaders and enhance their professional and personal development.

Masschallenge

Masschallenge connects entrepreneurs with the resources they need to launch and succeed immediately. Masschallenge's primary activities include running an annual global startup competition, documenting and organizing key resources, and organizing training and networking events.

Industry-Specific Organizations

CLEAN ENERGY

New England Clean Energy Council

The New England Clean Energy Council's mission is to accelerate New England's clean energy economy to global leadership by building an active community of stakeholders and a world-class cluster of clean energy companies.

LIFE SCIENCES

Massachusetts Biotechnology Council

The Massachusetts Biotechnology Council is an association of more than 600 biotechnology companies, universities, academic institutions and others dedicated to advancing cutting edge research.

Government Offices

Business Plan Competitions

http://www.massmeansbusiness.com[Massachusetts entrepreneurial resource: funding, location search, regional profiles]

http://www.entreworld.org [Kauffman Foundation: "A world of resources for entrepreneurs"]

http://entrepreneur.com [Entrepreneur Magazine online]

http://entrepreneurship.mit.edu[MIT Entrepreneurship Center]

www.about.com [Entrepreneur section of About.com]

http://businesstown.com [Twenty-plus topics from accounting to valuing a business]

http://dnb.comus [Dunn & Bradstreet]

http://caycon.comresources.php[Cayenne Consulting: The Entrepreneur's Library]

http://www.boston-enet.org [Boston 's Entrepreneur Network]

http://www.tie-boston.org [not-for-profit Boston organization with a mission to foster and support entrepreneurship]

http://globalbusinessexchange.com[Global Business Exchange is an intermediary business firm engaging in mergers, acquisitions, and business brokering.]

http://www.mtdc.comresources.html[Massachusetts Technology Development Corporation: Resources for Entrepreneurs]

http://www.sbdc.umb.edu/ [The University of Massachusetts Boston Small Business Development Center (SBDC) & Minority Business Center]

http://www.bpl.org/research/kbb/kbbhome.htm [Kirstein Business Library] Business Plans

http://bplans.com[Business plan samples and advice, financial calculators, and other resources]

http://growthink.com [Growthink offers business plan development, investment banking, and market research services.]

http://www.carnegielibrary.org/subject/business/bplansindex.html[Business Plans and Profiles Index by the Carnegie Library of Pittsburgh]

Intellectual Property

http://www.uspto.gov [U.S. patent and trademark office]

http://www.wipo.int [World intellectual property organization]

http://www.spi.org[Software patent institute]

http://www.ipmall.fplc.edu [Pierce Law's IP Mall] Money (Financial Resources)

http://www.mtdc.comindex.html[Massachusetts VC firm addressing the "capital gap"]

http://businesspartners.com [Introducing businesses to partners, venture capital, and angel investors]

http://www.masshome.comventure.html[Alphabetical listing of Massachusetts venture capitalists and other services]

http://www.hcangels.com [Angel Healthcare Investors, LLC.: Boston-based group of proven executives and entrepreneurs seeking investment opportunities in early-stage healthcare and life

sciences companies]

http://www.commonangels.com [Typical equity infusions range from \$500,000 to \$2 million in companies headquartered in New England]

http://www.capital-connection.com["Everything entrepreneurs need in their search for capital"]

http://www.capital-connection.commassvc.html [List of venture capital companies in Massachusetts]

http://www.bostonjobsource.commasscapital.html[List of Massachusetts venture capital and other resources]

http://www.investorscircle.net [Social venture capital intermediary whose mission is to support early-stage, private companies that drive the transition to a sustainable economy]

http://garage.com[Early-stage venture capital firm, includes resource links]

http://growthink.com[Growthink offers business plan development, investment banking, and market research services.]

http://www.capitalvenue.com[Capital Venue: "Connecting entrepreneurs 1on1 with capital sources]

http://www.fundingpost.com [FundingPost is a leading investment network for entrepreneurs to find investors (both venture capital and angel investors) online to match your funding requirements today.]

http://www.vfinance.com[venture capital and angel investors]

http://www.zyn.com/sbir [small business innovation research (SBIR) grants] People (Board Members and Advisors, Management, Student Interns)

http://cbdc.org[Cambridge Business Development Center is a not-for-profit dedicated to helping people start and grow successful and profitable businesses by providing mentoring and educational programs tailored to the ways entrepreneurs learn.]

http://www.cfos2go.comhome.htm[Senior financial executive placement firm]

http://www.consultants-mall.com[Search for consultant assistance]

http://cweboston.org[Center for Women and Enterprise: programs and services tailored to meet the needs of women starting, growing, or learning to operate their own businesses]

http://www.fed.orgindex.cfm [Foundation for Enterprise Development: non-profit education, training, and consulting firm] http://guru.com [Guru.com: The world's largest online marketplace for freelance talent]

Part 9: Describe Your Role in Developing the Ecosystem (10 total points possible): Describe the role that you play in helping shape these kinds of resources in your community. This role might be minimal, and we encourage you to be creative. This section is meant to help you identify what role, no matter how small, you play in the larger entrepreneurial ecosystem.

My Answer:

So in terms of my role in the developing ecosystem in Boston for entrepreneurs – I have no role whatso-ever. I am just had an interest and having this knowledge, if the opportunity ever comes up, I will already know what resources there are to help in being an entrepreneur in Boston.

I would participate in a start up, but given the length of time I've been unemployed in Boston (5+ years!), I plan to take the first job I'm given, whether it is at a small start up, large or medium sized company. I am not exclusive to only working at a start up. If someone like my husband who is currently an academic researcher at a university, wanted to investigate a start up, I would support him in doing that, whether I already had a full time job and I would be investigating it on my own time, or if I had no job and that was going to be my sole job. If a friend of mine approached me with an idea to collaborate in a brand new start up, the same would be true. But currently, I have no plans at all to be involved in a start up and have had no influence on the Boston area ecosystem for entrepreneurs. If I were asked to get involved in shaping the resources for the Boston area entrepreneur ecosystem, I would say Yes, but currently not only am I not involved in that, I don't even know anyone who is involved with it. I imagine if you are in a position to attend the Boston/Cambridge meet ups that they have for entrepreneurs you could better find out what is happening there, but I have young kids and a busy husband, so my exploration of how start ups find resources has been exclusively from home and this online course.

What I can offer here though is my sharing of my research of how Boston compares in terms of angel investment and venture capital investment (and I already shared in detail the philanthropic and government initiatives above), and perhaps in sharing this information in my report, it may indirectly in the future if someone reads it have some affect on the start up culture we have here.

For the USA, the **top angel investors in 2013** were:

- 1. Golden Seeds (Calif./Mass./NY) This active group focuses on women-led startups. Recent investments include group-reservations company Groupize, color-recommendation app Plum Perfect and Little Pim, a children's foreign-language teaching startup.
- 2. Tech Coast Angels (Southern California) Crunchbase calls Tech Coast the largest single angel investor group in the U.S. Investments this year include online-entertainment site HitFix, in a \$1.8 million round that Golden Seeds joined in as well.
- 3. Houston Angel Network (Houston) This nonprofit Texas powerhouse focuses many investments locally, and participated in 33 deals last year, for a total of nearly \$9 million. HAN also recently created its first sidecar fund, Texas Halo Fund I, which raised \$2 million. Recent investments include marketing-image company Cinegif and device-connectivity firm Meshify.
- 4. Central Texas Angel Network (Austin, Tex.) CTAN has more than 120 members and invested nearly \$10 million in 33 deals last year. Its most recent deal provided funding to Austin-based sales-contest startup FantasySalesTeam.
- 5. Sand Hill Angels (Sunnyvale, Calif.) Sand Hill has more than 100 members and made 32 investments last year. Investments this year include a series B funding for medical-device firm RenovoRX, in which Golden Seeds co-invested.

- 6. Launchpad Venture Group (Boston) The largest Northeast-based angel group, Launchpad focuses exclusively on local startups and invests up to \$1 million per round. Last month, it participated in a \$3 million funding round for online-catering startup ezCater.
- 7. New York Angels (New York City) This Big Apple AAPL -0.16%-focused group funds up to \$1 million per deal and has invested over \$100 million over the past decade. In February, NYA participated in a \$1.5 million funding round for student-research firm Citelighter.
- 8. Desert Angels (Tucson) This Arizona group has over 95 members and has invested over \$26 million in more than 65 companies since 2000. Most recently, cancer-fighting biotech Sialix saw both Desert Angels and Launchpad participate in its \$4 million Series B financing.
- 9. Investors' Circle This national nonprofit is the oldest and largest angel group, having funded more than 270 companies to the tune of \$172 million. Last month, its Philadelphia chapter provided \$1 million in funding to advanced-lighting firm Luxtech.
- 10. Alliance of Angels (Seattle) The Northwest's angel nexus has invested over \$80 million in 200 companies since 1997. A typical year sees \$10 million in investments from the group. Recent investments include participation in a \$30 million round for fast-growing Seattle beauty startup Julep last month.

The **VC Investment By Region** report I found on venture capital investments in the US verses a few other countries reported:

Region	Invested Capital US\$b	Invested Rounds	% Change (amount invested)	% Change (deals)	% of the Global VC Activity
United States	33.1	3,480	0.9%	-4.6%	68.2%
Europe	7.4	1,395	19.4%	5.7%	15.3%
Canada	1.0	176	14.4%	23.0%	2.1%
China	3.5	314	-30.0%	20.3%	7.2%
India	1.8	222	12.5%	-2.2%	3.7%
Israel	1.7	166	54.5%	17.7%	3.5%
Total	48.5	5,753	1.9%	0.2%	100%

Part 10: Thoughts on the Future of the Ecosystem (10 total points possible): Describe what you hope your ecosystem will look like in 5 years. Describe it in 10 years. It should include:

Description of how the entrepreneurial ecosystem might be different than it is now.

Assessment of the key strategic challenges/tradeoffs that entrepreneurs in this ecosystem are likely to face.

My Answer:

I think the only thing I can offer to the current entrepreneur ecosystem I've researched in the Boston

area would be to offer the meetings they have in Boston/Cambridge for entrepreneurs in an online setting, for Mom's with young kids such as myself, who are unable to attend in person – that would be a way in which they could improve for someone like me. I could easily see this happening in the next 5-10 years with all the offerings they now have online. Another important direction I see the Boston area entrepreneurial ecosystem might be different than it is now is that the more they offer these types of resources online, the more international in perspective it will become, with more collaboration across borders than there is today.

Outside the traditional strategic challenges/tradeoffs that entrepreneurs in a futuristic Boston ecosystem that allows people from their homes to collaborate with local and even company start ups across the country and world would face is how to best communicate when doing that. Resources such as Google Hangouts, Skype, sharing desk tops to solve problems, etc, can be used but it is always more challenging to collaborate remotely.

More traditional strategic challenges/tradeoffs that entrepreneurs face even in this futuristic setting would be as described for the first entrepreneur I interviewed, John Koger from Oasis Semiconductor-shared again here.

In terms of a common "tradeoff and challenge" that entrepreneurs make in getting their business started is whether to use angel investment or venture capital investment (ignoring in this case the other resources, but as an example given to me in my first entrepreneur interview as a tradeoff/challenge decision, and repeated in this section). John Koger, who started Oasis Semiconductor, explained that they were funded by angel investors, not venture capital. If they had been funded by venture capital firms, the salaries of the employees would have been higher but they would have been given less stock options, but the venture capital firm provides more money for start up equipment. With the angel funding Oasis received, the salaries of their employees were lower, and they had less for their start up equipment, but the employees received more stock options that were worth something when the company was bought.

John said the challenges he initially faced with Oasis in the beginning was that they were a company of 3-5 people for several years. In that type of small start up, the challenge is convincing giant corporations like Sharp to have confidence in them, because they were so small. It helped that they were a fab-less company, and instead asked companies such as Samsung, Agere (an old spin off from AT&T), and UMC (United Microelectronic Corporation in Taiwan) fabricate their chips for them. The reason this was helpful in building larger company confidence was because if their start up disintegrated, the large companies, such as Sharp, had a "license to buy directly from Samsung (or the others)" in the event that the start up disappeared. So that gave the large company customers the confidence they needed to buy the graphics chips from Oasis without worry of the company going away.

Other challenges were the tradeoffs you make for the next generation of graphics chips. The sales team hears from the customers a list of software and hardware features the customer wants for their next generation product. The challenge is what is realistically doable within the engineer's schedules to incorporate these new features and the cost to incorporate the new features in the new graphics chip and software product definition. The saying goes that if you take any of the three tradeoffs (feature, schedule and cost), if you take 2 of them and incorporate them, the 3rd tradeoff suffers. Planning this successfully was an on-going challenge.

So that is my most detailed example of some of the traditional type entrepreneur challanges/tradeoffs

within the Boston ecosystem.

Part 11: Describe Measures of Success for the Ecosystem (5 total points possible): Define what success for the resource providers in the ecosystem could look like. It should include:

How success might be measured Who the beneficiaries of success in the ecosystem could be.

My Answer:

In this section, I share the measures of success from all 8 entrepreneurs whom I interviewed, including the first one on whom I focused the rest of this report, since I think a future Boston entrepreneur ecosystem could learn from how each of them defined their success, and whom benefited from their success within their ecosystem. I can best relate from my technical education and work experience with the entrepreneurs in the high tech related markets, but as you may have observed, there is a sense of diversity in my entrepreneur interviews, to learn from the experience. I think all measurements of their successes can be important in our ecosystem.

John Koger, Oasis Semiconductor, Boston, MA:

Oasis Semiconductor's opportunities originally came by making graphics chips without software for the copy machine market of office equipment customers. These customers had other vendors where they bought other chips to do the other functions that the office equipment sometimes do in an all-inone printer, scanner, copier, fax machine, and initially they only bought the copy machine graphics chip from Oasis Semiconductor. Oasis then saw an opportunity to make a multi-function-peripheral (MFP), which incorporated all the printer, scanner, copier fax machine chip functions onto one chip. This was a big success for them, since it made the cost of buying chips cheaper for their office equipment customers and they only had to buy from Oasis, not 4 different chip vendors for each function. This also made their purchase of circuit boards cheaper, and the manufacturing of the product cheaper as well. For example, the first HP low end ink jet printer cost them \$1000, but within 4 years, the cost went down to \$99 for reasons such as this

The way that John measured the success of Oasis Semiconductor was that he had a lot of fun making his start up successful which is important in life, but as a bonus, he was able to sell the company in 2005 for 70 million dollars in cash (not stock). They were planning an initial pubic offering (IPO) as their exit event as a start up whose stock could trade publicly, but just when that was going forward, there was a glitch in sales, and a year later, SigmaTel, a former Texas audio company, bought them with the idea that they would incorporate their audio chip with Oasis's graphics chip. This made the first dozen people who started Oasis instant millionaires. John explained that each time you double the company size, stock options halve. Usually you can estimate that when a company is bought, the first round of employees (3-4 of them) will get 5-10% of that 70 million dollars, the next 5 people get about 5%, the next 10 employees get about 1%, and the next 20 or so get a half-percent of the purchase price with their stock options.

John said that the benefits to society from his Oasis Semiconductor business was that the printer cost dropped, helping every day people better afford all-in-one printer/scanner/copier/fax machines. John said for perhaps 130 people that were employed and working at Oasis Semiconductor, each one of their graphics chip and software office equipment customers each employed perhaps 100-1000 people, and their manufacturing clients each employed 5-10,000 people to manufacture their chips. So the employment of people also benefited society.

Pete Adams, Noah Precision and SOLX, San Jose, CA and Boston, MA and other key areas through out the world:

Their measure of performance is return on capital employed. This is the only metric they care about. As small business owners, we want a significant return on our invested capital and ROCE is the best measure of performance for us. At some point, Pete will retire and finding a successor organization that will become the next measure of success for them. The benefits to society for Noah Precision are for the people who use the products who use the chips that Noah Precision provides, since Noah Precision manufactures temperature control equipment to the semiconductor industry. The benefit to society for SOLX is the goal to preserve vision for an aging population.

Jim Shay, Shay-Glenn Medical Device Law Firm, San Mateo, CA:

The primary measure of his success has been their relative stability over the last eight years even as the overall legal and business landscapes have changed. The partners and employees of the firm are the primary beneficiaries, but their clients in the biomedical device industries have benefited from that stability as well.

Marina Kristel, Northeast Speech Pathology, Albany, NY:

Success has been measured in one way as the company grew during the past five years, which opened doors for the opportunity to incorporate education and provide classes to employees and direct care staff of the nursing home residents. This has been the optimal means for preventing aspiration pneumonia. Training the staff that feed and verbally redirect these residents simply on safe strategies to eat, drink, take medication, and prevent dental disease is the direct route to preventing the initial problem from starting and improving a condition caused by various medical diagnoses.

The success of this company is not based on income. Success is reducing the incidence of aspiration pneumonia in the community and in skilled nursing facilities. The United States is spending \$87 billion per year addressing aspiration pneumonia. Educating and assessing the swallow with this gold standard instrumental exam known as FEES, will enable the in-house Speech-language pathologist to know the physiology of their patients' swallow, the least restrictive diet texture and liquid consistency, what strategies are necessary in order to safely swallow, and what plan of treatment (including swallowing/strengthening exercises) are necessary.

The beneficiaries of this success are the patients, both young and old, as well as the government's money (coming from both Medicare and private insurance companies) which ultimately comes from the people of the United States.

Kathy Brown Filemaker Pro Consulting, Providence, RI:

The success and growth of Kathy's business was mostly from word of mouth of completing projects for customers. Most of Kathy's clients are higher educational institutions across the country which are those who benefit from her consulting work, along with university workers or students who may use it as well. Kathy measures her success regularly according to the amount of consulting work she has been contracted to do.

Sherry Toedt Insurance Agency, Albany, NY:

Success for Sherry is making a reasonable living by doing what she knows best and making a difference for my customer. Insurance doesn't matter until it matters and each of her customers is taught about their insurance coverage and how to make the best decisions in regards to their insurance. Sherry's favorite saying is - "Insurance is NOT a commodity like a gallon of milk to be purchased at the lowest possible price but rather a complex financial tool that should be purchased based on need and understanding at the best AVAILABLE price".

The beneficiaries of Sherry's success aside from herself and her family are her customers and the insurance companies she represents. The customers receive outstanding products specifically tailored for their needs at very competitive prices. The insurance companies receive pre- underwritten accounts that have been provided risk reduction education which results in profitable business for the company. When the companies are profitable their shareholders benefit as do their customers with competitive premiums.

Bob Clancy, Spiral Design Studio, Albany, NY:

They measure success by competing against themselves to always improve what they're doing. Obviously, success can be monetarily measured, but more so for them, it's important to have client satisfaction for the return on their investment. They've largely built their business upon word-of-mouth referrals and currently have clients such as: Citi Group, Activision, Sears, Zales, Sunoco, Best Buy, Home Depot, Disney, among others. Those who benefit from Spiral Design Studio's services are anyone who uses these things they develop at the above mentioned clients: Graphic Design, Website Development and Corporate Branding.

Joan Hartel Cabral, Vantel Pearls, Easton, MA (south of Boston):

Joan's measure of success is certainly a financial measure, where over the years she has experienced a consistent profit every year, and that is her business success. Joan's personal life measure of her success is her serenity and work/life balance, since she has observed that many people in the President and CEO position of a company do not have this work/life balance that Joan does.

The beneficiaries of Joan's success are the demonstrators of the Vantel Pearls, and some of her demonstrators have been with her for over 15 years. Joan and her demonstrators believe in "intrinsic personal development", which Joan describes as an "understatement", and they attend womens' leadership conferences and businesses to speak about their success and share their "treasure gems" which are listed on the Vantel Pearl web site (8 of those). A few of those for Joan are: "trusting your intuitions", "your richest rewards come from helping others", and for Joan, she is not shy to say that she believes "a power greater than herself provides her best guidance". Joan and her demonstrators share their "treasure gems" at the women leadership conferences and businesses where they are invited to speak about their pearl jewelry business success, to inspire other women, sharing the panel with other successful women from all different types of backgrounds that are different to theirs.

There is something to be learned from each one of the entrepreneur interviews I did in terms of how they measured their success and whom benefited from it.

Extra Credit (5 points):

If you have created an original video to supplement your written work for extra credit, please upload it to YouTube.com and paste the hyperlink in the text box below. Only submit your own original video.

Do not include links to outside video sources that are not your own work.

My Answer:

This video is not an interview with my chosen entrepreneur, John Koger, on whom I answered most of the questions for this final project. However, it overlaps with the former business he started, an all-in-one printer/scanner/copier/fax machine business. This is a video of a 3-D printer in the Derby, England Industrial Museum, printing something plastic there on Aug. 29th, 2014, a video taken by me. There are many "futuristic" ideas for the business of the person whom I interviewed and his business. 3-D printers were not included in the Oasis start-up, but it's easy to see how that could be the way of the future for additions to that business. So I do not know if this counts as an extra video for your final report, since it did not come from the person whom I interviewed whom originally started Oasis Semiconductor, now part of Conexant, and he is no longer there anymore, but I think it's easy to see how this business he started could be expanded to include the 3-D printing business - with many futuristic applications, as demonstrated here. The people in the video are actually my husband and 2 young kids. ;-)

http://youtu.be/ywdxFjhgQAk