

Mr. Shapiro: challenges and opportunities for digital health start-ups

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Mr. Shapiro (*Figure 1*) was a pioneer in the computer services, cellular phone and now the digital health industry, creating significant market penetration, profitability and shareholder value. Shapiro's experience encompasses start-ups in technology and cellular industries growing at hockey stick levels. Shapiro is a CPA with extensive operations experience.

Shapiro is a cofounder of eHealth Ventures, LLC. eHealth is a consortium of leading health care providers including the Cleveland Clinic, Maccabi Health Care (Israel) and others. Their mission is to find, fund and grow early stage digital health companies. eHealth Ventures closed its first fund of 10 million dollars in 2015. They are investing in digital health companies in Israel. Through their partners and strategic relationships, eHealth will commercialize portfolio companies worldwide.

Shapiro started in the late 1960's in the computer service industry primarily working for ADP. Later Shapiro joined Cellular Communications, Inc. as president and general manager of The Cleveland/Akron/Canton market trading as Cellular One. During Shapiro's time in this market his team's results included being one of the first cellular operations in the US to have positive cash flow. This property is Verizon today.

Shapiro moved to Puerto Rico in 1993 to run a spinoff company, Cellular Communications of Puerto Rico trading as Cellular One. After a few years running this market, analysis referred to the company as the "Jewel of the Caribbean". Achieving the highest market share and profitability in the region the company was sold to SBC (now ATT) for over \$815 million.

Shapiro did consulting for fortune 500 companies and start-ups in Telecommunications, social media and digital health companies prior to starting eHealth Ventures.

Shapiro is a CPA, a graduate of the Kogod School of Business at American University and is currently on the Dean's advisory board, and is a founding member of the Entrepreneurship and Innovation program at American University.



Figure 1 Mr. Stephen M. Shapiro.

mHealth: What makes you become interested in eHealth?

Mr. Shapiro: My career started in the late 1960's in data processing; computerized accounting systems. In the middle 1980's I moved to the cellular phone business and now my passion is digital health. I guess timing means a lot. I have been fortunate in my career to be on the front-end of disruptive technology.

I am passionate about digital health (mHealth) because of the transformation-taking place in healthcare today. During our generation, the quality of our lives have changed more than any previous generation as a result of the use of new technology. Examples include how we use transportation, telecommunication, entertainment and computers/internet as part of our lifestyle. Has healthcare taken full advantage of technology as other industries have in efficiently improving our quality of life? I don't think it has nearly reached its potential. We can make it happen, that is why I am interested in eHealth.

One sign of change is the investments in digital health. For example, in 2012 the global market for mobile health was \$1.95 billion; the estimate for 2020 will be \$49 billion (one-third from the US).

mHealth: You are the president of eHealth Ventures, LLC and co-founded the consortium to find, fund and grow digital health companies in Israel. What's the current development of digital health companies in Israel?

Mr. Shapiro: Israel has become an international hub and major research center with over 250 international companies having R&D centers in Israel. The human capital, strong infrastructure, one of the highest educated populations in the world, and the many Government programs to finance and encourage entrepreneurship greatly contribute to Israel becoming known as “The Start Up Nation”.

The Israeli government has played a very important role in encouraging research and development in the life sciences. According to the 2015 report from IATI, the Office of the Chief Scientist at Israel's Ministry of Economy invested \$100 million annually over the last decade in the sector—and that in a nation of only 8 million people.

IVC research reported these investments in high tech in Israel:

- (I) Raised a record \$4.3 billion in 2015. This is a 30% increase from 2014;
- (II) Sales of such companies were \$9.02 billion which was a 16% increase over 2014;
- (III) The sales comprised 96 Israeli high tech companies to private equity firms;
- (IV) In addition there were 8 IPO's with an average exit of \$87 million. The sale to Private equity money vs. IPO's is a worldwide trend.

Tel Aviv is the fifth best place to establish and run a start-up, according to a report by tech company Compass. Jerusalem is also recognized as one of the world's top start-up ecosystems.

There are almost 2,000 technology start-up companies in Israel with over 10% in digital health. Digital health is a new category that is growing.

Supporting the emergence of digital health start-ups are University Hospitals, such as Hadassah University Hospital in Jerusalem, and institutes, Technion Institute (rated in the top 10 of the world), world-class healthcare organizations like my partner Maccabi Healthcare. Advanced technology in the defense industry has also contributed to identifying technology in health care. For example eHealth Ventures has looked at two companies that use advanced photography and video technology developed by the defense industry being used to detect potential cancer in patients.

mHealth: In your opinion, for a start-up digital health company, what should it focus on?

Mr. Shapiro: The first thing a start-up should understand is the problem they are solving. Once this is identified, understand if anyone else is in the space, then if they see a strong market opportunity. In healthcare it is important to understand who pays for services. Even though you may have a product or service that is needed, it is critical to know who will pay.

For example the wearable market is exploding, with major companies in the space like Garmin, Apple, Nike Sony, Fitbit with Google, Facebook, Microsoft and others investing substantial R&D efforts. A start-up would have to find ways to add value and differentiate itself. One opportunity could be in middleware to collect and assimilate data across multiple touch points. Create information that is easy to understand, actionable and available to the right person at the right time.

We, eHealth Ventures, like the bio-gaming space, use existing hardware in the clinic and home to provide therapy in a very structured format; that is engaging and can adjust to help the patient make daily improvements. The idea with bio gaming as with other types of digital health technology is to make the improvements in healthcare fun, engaging and at times transparent to the patient.

Some technology may be saturated in some countries and be a major opportunity in others. For example Tele-Medicine, in my opinion, will be a game changer. There are many players in the US, but have had little traction, primarily because of reimbursements, but in third world countries it can be an enormous opportunity. The technology has been developed; the issue will be on how it would be delivered and who would pay. In third world countries payments could be through grants and from international associations like The World Bank.

mHealth: Can you give us some insights into the future development of eHealth?

Mr. Shapiro: We are only starting to see the beginning of eHealth. As I mentioned above I believe we have a long way to go in using the data being collected on wearables to make the data actionable to improve our quality of care. Secondly I think we are only starting to see the value of big data in healthcare. IBM's Watson is an interesting study on how computers can learn and be used to predict future health issues in time to prevent them. Watson accelerates breakthroughs by making connections and

drawing relationships between different sources of data so organizations can discover something new. My partners at the Cleveland Clinic partner with IBM to use Watson to advance a new era of cognitive computing that will aid in the acceleration of new discoveries and bring forward new breakthroughs in personalized medicine.

I see us making less doctor visits with more care in the home. As the world's population becomes older because we live longer, much care will be in the home or in small clinics like the US is seeing in CVS and Walgreens.

A problem that needs to be solved is the use of electronic health records. In my opinion we have not been successful in having all of our health records available to the right person at the right time. Billions of dollars worldwide are being spent on this area, and we still have not created interoperability. This is one of our challenges.

mHealth: Which mHealth/eHealth tool or trend has surprised you the most, either with its success or its failure?

Mr. Shapiro: The growth and flexibility of wearable devices has surprised me. Gartner, Inc. projects 50 million units will be sold in 2016 and growing. The increase from 2015 to 2017 is projected to be almost 50%. More specific to healthcare remote cardiac monitoring services will reach \$867 million this year.

As far as a disappointment in the lack of success of electronic health records as I discussed earlier. The value to all of us is to have our medical history available whenever and wherever care is required so as to prevent mistakes and save lives. We have a fragmented system that leaves doctors unable to trade information across practices or hospitals. This hurts patients who can't be assured that their records such as drug allergies, test results, X-rays will be available to doctors who need them. It also means that we never achieved the goal President Obama had set 7 years ago of lowering health care costs by spending billions of dollars to digitize the US medical records.

mHealth: What is going to be the next technological revolution in healthcare?

Mr. Shapiro: This year marks the 200th anniversary of the use of the stethoscope, which was invented in Paris by Rene Laennec. When we think of a physician what is he wearing? Our image of a physician has him/her wearing a stethoscope. Will this continue, is the stethoscope still

relevant? I ask this as a rhetorical question. We are in the midst of a technological revolution in health care. To me it is not what technology will replace the stethoscope, but rather how will we use technology.

At eHealth Ventures we are exposed daily to new ideas and technology. I always ask how can this technology be used to make a positive difference? Will it improve our quality of life, cure people and make our healthcare system more efficient? For example I see the future directed by data driven health care. Today we have enormous amounts of data collected. We need to efficiently digest this data, manage the data, learn from the data and most important to use it to predict, cure, and improve our quality of life while lowering costs. If we can achieve this we would have seen a revolution in healthcare.

mHealth: Who is going to push eHealth "to the next level"—consumers, providers, payers or policymakers?

Mr. Shapiro: Of course all four are stakeholders and will benefit by improvements and lower costs in health care. Who is the main driver? All in part, but as in most products and services the final say is the consumer.

mHealth: Finally, do you have any suggestions for our journal?

Mr. Shapiro: I find the journal to be well done. There are an impressive group of contributors to the journal. The content I read is very relevant, well written and factual. It is my honor to be one of the contributors.

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None.

Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

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