

Revolutionary Facial Analytics, Biodemography and Dynamic Questioning Platform using a Photograph to help Insurance Companies Assess Risk by providing Life Event and Longevity Predictions



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CEOCFO: *Dr. Olshansky, would you tell us about Lapetus Solutions?*

Dr. Olshansky: We are doing something that has never been done before. My colleague (Dr. Karl Ricanek) and I are scientists; I work in the field of aging

where I created the modern field of biodemography and Dr. Ricanek is an engineer known for developing the field of facial analytics. Years ago I was inspired by Robert Benmosche, the late CEO of AIG who invited me to Houston to give a talk about the future of longevity. When I was presenting what we knew about aging and longevity and discovered that none of this is used in the insurance world today, he told me we needed to bring this knowledge to the insurance world. It took a couple of years but basically we are using rather unconventional approaches to assessing risk at the individual level that have never been used before in the world of insurance, but which are stable and well validated metrics from the world of biology. For example, one of the things that intrigued Robert Benmosche the most was a photograph that I showed of a 100-year old man and his 70-year old son. The 70-year old son looked like he was about 50. I said that those of us that study aging for a living know that people who look younger for their age throughout their life are in all likelihood aging at a slower pace – that is the reason they live so long. Aging at a slower pace means that one year from now you are not one year older biologically, you are more like six, eight or nine months older biologically. The basic biology of life appears to operate at a slower pace among long-lived people, and we can pick this attribute up in the face; the face is sort of a window into the rate at which we are aging and the disease risks we face. The fact is, people who look younger for their age tend to live longer; and those that look older tend to die earlier because they have acquired harmful behavioral risk factors. Benmosche said we have to bring this to bear in his field. Another example, which is well known in my field, is that how long species live is calibrated to reproduction – the time window between puberty and menopause. This means in the case of people, woman that go through natural menopause late, tend to live significantly longer than women who go through natural menopause early. This information is not known in the insurance world but it is certainly known in my world of aging science. Bringing this and a suite of other information like this to bear in assessing risk at the individual level is what we have done at Lapetus. We have really taken Robert Benmosche's encouragement and transformed it into a fully functional well-validated platform that actually can be used by insurance and reinsurance companies to assess risk at the individual level with a degree of reliability never seen before. We anticipate that insurance regulators will look upon this technology favorably since the science behind it is so well established.

CEOCFO: *Why and how have things like this been missed?*

Dr. Olshansky: People who work at insurance and reinsurance companies and who make decisions about risk are typically actuaries and medical directors and they have an expertise. They have been trained to do what they do and they do it very well. The actuaries know mortality statistics well but they have not been trained to understand the underlying biology behind the mortality statistics. The medical directors focus on specific diseases and their risk factors, but are not focusing on why these diseases occurred at certain ages and what other attributes of individuals can predict their occurrence. What you have is what typically occurs in the world of science and that is people are trained narrowly within

their own scientific disciplines and that is what they know. Those are the hammers that they bring to the table when they go to companies like this. Remember, insurance companies have been working and operating at the same level for a couple of hundred years. Some of their methods have remained the same, and there has not been a concerted effort to bring these other sciences to bear on their industry, until now. I have been going around speaking to a large number of insurance and reinsurance companies for the last eight years. It is one thing to talk about aging biology and how we have the capacity to predict survival using unique attributes of individuals; it is another thing entirely to do something about it and actually help the insurance industry do what it does better. That is what Lapetus is all about. It is taking these ideas and turning them into products that can actually be used by the industry with confidence that they work – secure in the knowledge that they've been well validated.

CEOCFO: *What have you developed?*

Dr. Olshansky: We have developed several things. The first product we have developed is called CHRONOS – an Internet platform that can be accessed by computers and portable devices. In CHRONOS what we can do is upload a photograph of an individual and instantaneously make a determination of whether or not this person is a smoker; and we then calculate their body mass index relative to self reported height and weight. These two independently validated risk factors are already used in the insurance world to assess risk, and currently no one else has the technology or data to independently and reliably measure them. Right now, there is a buzz in the insurance industry about Lapetus' ability to detect smoking status with a photograph – a technology that cannot easily be fooled because a person's smoking history is written all over their face. The way in which things are done now is you ask someone if they are a smoker or you take a blood test to determine whether there is a factor contained within the blood suggesting that they smoke – both of which can be and are easily fooled. A "smoker's face" is a well known attribute of individuals among clinicians, and especially plastic surgeons, both of whom can easily identify a smoker on sight. With facial analytics, we now have a scientific approach to independently verifying smoking that is not subject to misrepresentation.

"Lapetus Solutions is a byproduct of a serendipitous set of events involving the merging of two scientific disciplines by research scientists that had no idea they were about to disrupt several major industries. Their research over the years was developed for other purposes, but when combined together they yield an extraordinarily innovative suite of technological innovations that are already having a rippling effect across the insurance, financial services, and cosmetics industries. This is an enabling set of technological innovations, so even we don't know how these advances will be used in the future. Our future is bright, the sky is the limit, and right now we're enjoying the satisfaction that comes from successfully translating well validated scientific discoveries into products that will disrupt industries that until now were never even on our radar screen."- Dr. S. Jay Olshansky, Ph.D.

CEOCFO: *How high-quality does the photo need to be?*

Dr. Olshansky: It needs to be a fairly high quality. The cameras that exist on most phones today are of a sufficient quality to meet our needs. It has to be a live capture photograph so you cannot take a picture of a picture and you cannot take a picture of yourself from ten years ago. We actually have the technology to determine whether a picture is a live capture or whether it was taken in the past. We are also capable of picking up on the use of cosmetics, plastic surgery and interventions that can be used to modify the face. The technology was originally developed for the military. If you have heard of Whitey Bulger, CHRONOS technology developed by Dr. Ricanek was the technology that was used to find him. We are basically repurposing technology that was designed for another purpose, for this industry. With CHRONOS you upload a photograph, answer a series of questions, some of which are bio-demographic questions that allow us to get at issues that one might not normally think are relevant, such as age of menopause, level of physical activity, marital status, and income. We then run the assessment instantaneously, so normally if you get underwritten for insurance today it could take upwards of four weeks to get an answer – by contrast, we can generate an answer in about three minutes. What we contend is that the answer is going to be pretty close to most of the answers you get today from traditional underwriting, and our ability to place insurance applicants into comparable risk pools as existing insurance carriers is what companies are now evaluating. In other words, we are saying we can do in just a few minutes what now takes about a month to do using traditional underwriting. It is a bit of a shock to the industry because they have been doing things the same way for such a long time; to see something like this come along is a bit disruptive. We have been called disruptive by a number of organizations including Plug and Play – where we were just named one of the top newly emerging companies in the world of insurance.

CEOCFO: *Are products available today or are you still in development?*

Dr. Olshansky: Several products are available today. We have a stream of products that are going to be available by the last quarter of this year, and then we have a whole suite of additional science-based products that will be coming out of

Lapetus over the next five years. For example, we've already put "age progression" in the field, which is an ability to see what you'll look like in the future; we can detect smoking status and BMI with a selfie; CHRONOS is already fully operational in almost all nations; we're the first research team to integrate data from wearable sensors (such as a Fitbit) into a quantifiable measure of health; we're now working on a Better Life and Income Scoring System (known as BLISS) that combines actuarial and biodemographic assessments of risks for individuals and their dependents with financial status for the purpose of scoring 'readiness for current and future life events'; we're rapidly moving in the direction of being able to detect certain diseases using attributes of the face; our work on genetic epidemiology is ramping up; the Internet of Life based on predictive analytics from Lapetus scientists is beginning to take shape; we've initiated a new global data collection system that will enable us to expand our analyses to all population subgroups across the globe (known as SMILe); etc., etc. We are right at the beginning. We have our first clients and have already put one of our products out in the field.

CEOCFO: *What industries are using your products?*

Dr. Olshansky: Right now we are starting with the insurance and reinsurance industry. Their first interest is in smoking detection, but interest in detecting BMI and other unique attributes of individuals that allow for unique assessments of risk are rapidly gaining interest. Chronos is particularly attractive because companies can assess risk in minutes rather than months. We are now also in detailed talks with the cosmetics industry. One major cosmetics firm is pushing hard to use our technology to simply upload a photograph and determine specific skin diseases that exist on various parts of the body. Then we have the world of financial services that has become interested in our BLISS scoring system that combines facial analytics, age progression, and biodemographic assessments. When you go to plan for retirement today, normally what is done is your financial advisor will ask you how long you think you will live and what do you think your needs are for the future. Most people do not know how to answer that question and they certainly do not know how to answer it well. With this technology, you take the ambiguity out of it. We can actually calculate not just your estimated life expectancy but we can calculate your healthy life expectancy (that is, what proportion of the remaining years of life that you have are likely to be healthy and what proportion are likely to be unhealthy with some level of frailty or disability).

CEOCFO: *Would you give us a little background on how you started on the journey to make quite a difference in people's lives?*

Dr. Olshansky: Once I came back from this meeting with Robert Benmosche I contacted Dr. Karl Ricanek Jr., Ph.D., who is our Co-Founder and Chief Data Scientist. I started giving presentations on our effort to combine our sciences, and at one point I was at Columbia University and there was a reporter in the audience who was fascinated by this -- she was from the Washington Post. She asked if she could do a story on it and I told her that she could not because it was not ready. She contacted me every three months to ask if she could do a story and I told her no, no, no, it is not ready. About a year later she asked what story she could tell. I told her that was the right question. We told her the story and she turned it into a front-page story in the Washington Post. Karl and I knew this was going to get a lot of attention so we created a website called FaceMyAge.com. It came out in July a couple years ago. We basically used it to collect data and people would upload a photograph, and answer a few questions; we would then kick back an answer to how old their face looked relative to other people their age. So if you were fifty and your face age came in at forty, well those people were pretty happy. However if you were fifty and your face age came in at sixty or seventy, those people were unhappy. The bottom line was we created the site for the purpose of collecting data. We would have been happy with about 20 thousand images collected over a calendar year. If you go online and type in Face My Age under news stories, you will see tens of thousands of stories that came out when Face My Age went public. We did not publicize it at all but it was so popular we ended up downloading somewhere in the range of five to ten thousand images per minute when this all started. It went global immediately. We were contacted shortly thereafter by entrepreneurs who asked us if we had any idea what we just did. We told them yes, that we collected a lot of data that we were not anticipating to get that fast. They said no, that they thought we just disrupted several industries such as the insurance industry and financial services; they did not mention cosmetics because that came up later when we were contacted by plastic surgeons that wanted to use the technology. We really did not know what we had done, we were just collecting data and we ended up creating a company. We received plenty of offers and a lot of money thrown at us from a large number of organizations. We were not business people but academics, so it took us a while before we finally settled on whom we wanted to work with. We received a large sum of money to begin with and gave up a part of the company. We are just now entering our Series B capital raise. It is all getting pretty exciting.

CEOCFO: *What is the timetable for Lapetus Solutions?*

Dr. Olshansky: We are hoping that about one year from now you will see advertisements on TV based on our technology. There was something that went out a few weeks ago from a major insurance company that wanted to test our Age Progression technology, so they put it out on Facebook. All we gave them were a thousand uploads to evaluate.

They were expecting it to take a month but it took three days. They were really excited about this. We have already moved to Phase II with this major insurance carrier and we are thinking they may be the first ones to go public with it. One of the ways in which you are going to see it happen is one company in particular is doing something extraordinarily innovative. They are saying to the public we can underwrite you with nothing more than a photograph. Send us your picture and we will give you an instant assessment and a premium level with nothing more than a photo because with a photo, we can tell your gender, your chronological age and your smoking status and body mass index. We have completely changed the rules of engagement between these companies and their clients. They have all been particularly interested on how to gain access to millennials. All millennials have phones in their pockets and all of those phones have cameras. People are quite enamored with taking selfies, so using technology that is already in everybody's pocket, they can actually gain access to a large number of people doing something that they are already doing. It is a fascinating use of our technology and I think it is going to be one of the more interesting advertisements as we eventually see on TV somebody essentially doing nothing more than uploading a photograph while sitting at the table and being underwritten for life insurance instantaneously with nothing more than a picture.

