SAS SPECTRUM eNEWS

Entrepreneurship in Spectroscopy: Two Funding Stories

Small companies are a significant source of innovation in Spectroscopy. Since underlying technologies in instrumentation continue to evolve, there are always new opportunities. Small companies founded on original ideas by industry pioneers have led to first instruments and new analysis methods in many of our sub-fields. In mass spectrometry, Consolidated Engineering Corporation sold the first commercial mass spectrometer in 1942. Block Engineering/Digilab piloted the first commercial FTIR in 1969. In line with this observation, the United States Small Business Administration noted in 2008, "small firms are much more likely to develop emerging technologies than are large firms."

Founding a successful company doesn't just depend on ideas, knowledgeable people and equipment, but on adequate financing. The finances allow the building of prototypes, paying salaries and providing an advertising budget needed to grow the business. Growing the business needs building partnerships and a customer base. There are a number of funding models that are used including self-financing, investors, crowdfunding and grants. Two recent entrepreneurs, Friedrich Menges and Alexander Scheeline, agreed to a question-and-answer session for this article.

Friedrich Menges — Founder of SPEKWIN Software

Alexander Scheelite — Founder of SpectroClick

Briefly, what was the idea and product that you sought funding for?

Friedrich Menges: I sought funding to update SPEKWIN32 (http://spectroscopy.ninja), a generalized software package for optical spectroscopy. Currently, the software is able to read, write, and display data from more than 35 spectral file formats from UV-VIS, NIR, FTIR, fluorescence, and Raman spectrometers. With this software, users can bring together all their spectral data and concentrate on data analysis in one common environment. Development started during my PhD time in 2000, and the software has continually evolved since then. It is now time for a significant overhaul to work efficiently with modern hardware and operating systems.

Alex Scheeline: We are developing hand-held visible spectrometers, leading to broadly available cell phone/smartphone spectrometry. Once we make spectrometry simple, robust, and inexpensive, it will be a small step to providing this as a common technology for world-wide use. Why not have spectrometry as ubiquitous as musical playlists?

What research did you do that indicated that there was a market?

Friedrich Menges: Originally, the software existed as a tool just for me and some lab mates. Ever since, it is continuously spreading around the world. The first outside scientific citation happened in 2004, and has grown to at least 116 mentions in scientific papers to-date. Since 2013, it has been downloaded by nearly 14,000 individuals from 143 countries. I introduced a commercial licensing scheme in 2010, and about 80 companies have purchased a license. This was enough to pay the expenses for incremental development, but I could only dream of making a living from it.

Alex Scheeline: We have not done detailed market research. Since cell phones are now the central information vehicle for most people, even in Third World countries, there is a market because environmental monitoring is of concern everywhere. Each time there was a chemical spill or water contamination, it fed the notion that individuals would want to have the ability to test for themselves, rather than trusting authority figures to tell them if their environment was safe. Later, additional markets have appeared.

Did you seek advice before embarking on your funding quest?

Friedrich Menges: Much advice on the internet is available on all types of funding. I have had interesting discussions with a number of individuals. One great resource was Neil Chue Hong, Director of the UK-based Software Sustainability Institute. I have pondered for two years on the possibilities and which way to go.

Alex Scheeline: The University of Illinois at Urbana-Champaign Research Park helps faculty get started in bringing new technology to market. They were most helpful and put me in touch with those who could provide legal and business advice for scientists needing these services. Our contacts through the Research Park were and remain helpful. I talked with several SAS members who had started businesses, and they also were encouraging.

What funding model did you pursue, and why is it a better funding model than others?

Friedrich Menges: I choose to raise funding for the software modernization by crowdfunding, and used the Kickstarter platform, because it is well-known and trusted. Potential backers were asked to support the necessary development time with their donations. Time for money, so to say. As I also planned to make spectroscopy software development my day job, this was the only way to start the whole thing without creating unmanageable personal debt.

Alex Scheeline: I have three sources of funding. 1) A contract with my first customer is subsidizing instrument development. This doesn't cover all of our costs, but it certainly helps. 2) Self-funding puts a significant fraction of my savings at risk, but it ensures that the main holder of equity has bought into my business and technical approach! 3) We continue to seek external equity and additional grants/contracts. Before the end of this year, we may be adequately funded and forging ahead with additional personnel onboard to implement instrument production and marketing.

I would not say that this is better than some alternative. The weakness of the company at the outset remains: with too small a team and inadequate funding, potential investors worry that we can't deliver and they hold back. But without additional funds, I can't hire anyone who needs a salary, so failure could become a self-fulfilling prophecy.

What can break the no money/no people/slow progress tight loop? A cash infusion might make the difference. Can I get this to work on my own through "organic growth"? Will a fellow spectroscopist who shares the vision cast their lot and turn this nascent technology into a sales juggernaut? If it is none of the above, we're doomed. If it is all of the above, we can't fail!

How successful was the fundraising venture, and how would you do it differently?

Friedrich Menges: Software crowdfunding in general is often less successful than the commonplace technical gadgets or games. I didn't expect much from Kickstarter in terms of advertising. I aimed to involve the thousands of academic users, and hoped that there would be enough users willing to each give a little share that would amount to an adequate sum. After all, they did and still do benefit from a free powerful tool.

Creators of crowdfunding projects are advised to run projects for rather short time, so I choose to run my campaign for 31 days, as advised. When the time counter ticked down to zero, my Kickstarter crowdfunding was only 66% backed. This is a good result, as only 2% of non-founded projects ever got to this level. However, the rules make this a failure as all of the money is refunded to the backers. There are other crowdfunding platforms like Indiegogo, which allow both flexible funding targets and flexible run times. It might have been better to have set a longer project time and also to prepare better in advances. Building up an active following takes time, and you don't have enough time when the project is already running. In my case, I anticipated having a large following, since I used my email list of over 12,000 SPEKWIN32 users. However, I learned there is a difference between being thankful versus getting involved as a crowdfunding backer.

Another limitation was the Kickstarter's limitation to credit and debit cards as the only means of payment. While this is perfect for the US and Canada, it is less wide-used in parts of Europe, and even more limited in Asia and South America. As an example, from the roughly 1,200 users in India, nearly no one was even technically able to support the campaign.

Currently, a new attempt is running, this time I implemented a fundraising campaign directly into my website, and about 42% of the backers from the Kickstarter campaign have already chosen to support the future of their spectroscopy tool. It has no time-limit, no fixed funding goal and allows payment in local currencies from all over the world, http://effemm2.de/nextgen/index_en.html.

Alex Scheeline: It is too soon to know if we will be successful. Our hardware problems are effectively solved and the software is nearing completion. Since the lack of money and co-workers are our greatest problems, in the abstract I would like to find deeper pockets sooner to accelerate the growth of the team, but given geography, history, and my learning curve, I am not sure how to further accelerate growth. Perhaps the alternative should have been shopping the technology to an existing firm and getting hired to do development. I'm just stubborn enough that I refuse to consider without money, a product shouldn't be developed.

What can the SAS do to help startups in Spectroscopy be more successful?

Friedrich Menges: SAS consists of a vast network of experts and business professionals. Alone the possibility to address this network as a whole could create so many opportunities that a start-up would really benefit from experiences and suggestions coming back from the network. Currently, this is not easily possible.

Alex Scheeline: SAS already has a job board and a group of really intelligent, friendly colleagues who are generous in sharing their experience. Without Bruce Chase, Mike Carrabba, Andy Zander, and Rina Dukor, I would be in a lot worse shape than I am at this point. Without Bill Fateley and his success at DOM Enterprises, I might not have thought of starting (and I also might not have gotten tenure, but that is another story). SAS members are likely to be the people I turn to when I finally have funds to hire staff for SpectroClick. By the way, two non-SAS mentors were also major influences. Peixin He, who started CH Instruments, is a UI alum, and our conversations over the decades were important. Pete Kissinger, who left my undergraduate Alma Mater MSU in 1974 to move to Purdue so he could build BioAnalytical Systems, was an early role model.

What advice can you offer to those planning on starting a business?

Friedrich Menges: Do your homework. Your product has to create value for your customer. Start small and on the side, if possible. This will facilitate going through the long period of learning and getting known. When the time has come to make a public push for funding, you still need a leap of faith. If you dare, and don't mind a crazy time of sleeplessness and anger, there are alternatives: take VC money and burn through it, take on debt to grow, or take on even more debt to grow faster.

Alex Scheeline: Everyone seems to think that the area of their expertise is the most difficult part of starting a business. Business people think finding and serving markets and customers is the hardest. I thought that developing the technology would be the hardest. Sales people think closing the sale is hardest. Lawyers think regulatory, potential liability, and freedom to operate considerations will be limiting. I have evolved to thinking: juggling everything that needs to be juggled while still maintaining your technical edge, productivity, and enthusiasm is hard. Don't try to do it all yourself. If you don't have a big enough core team and enough angel money, you are in over your head. That is just one more example of the perspective, "My biggest problem appears to be the biggest problem!"

Editorial Observations

It takes a courageous and talented person to embark on establishing a business. You have to believe in yourself, your idea and the community to even begin. To say that the funding environment is hostile is an understatement. Outside funders want a significant return on their investment and assurance that the company will be a success. Customers want to know that you will be around to support their purchases. The statistics for business survival beyond year three remain dismal because of concerns like these that result in funding and adoption gaps. Because of the innovation alone, all of us are indebted to the courage of small business founders.

One of the conclusions that can be drawn from the interview is that the SAS is not just a market to sell into. The membership represents a deep source of information for technical innovations, but also a resource of experts in manufacturing, marketing and global sales. Perhaps our community is a resource underutilized by all of us.

If you want to hear more, highlight other startup companies, or know of small business models in Spectroscopy that should be featured, please contact Fred Haibach (fred.g.haibach@gmail.com) or Bonnie Saylor (exdir@sas.org).

Contributed by Frederick G. Haibach

New Member Benefit

SAS is pleased to partner with Office Depot to offer our members discounts on their office supply needs. Just click here for more information. (Coming soon another new member benefit to help you save money when booking a hotel. Keep your eye out for more information.)

Office DEPOT
OfficeMax

Contributed by Bonnie Saylor

Gordon F. Kirkbright Bursary Award, 2017

The Gordon F. Kirkbright bursary award is a prestigious annual award that enables a promising student/non-tenured young scientist of any nation to attend a recognized scientific meeting or visit a place of learning.

The fund for this bursary was established in 1985 as a memorial to Professor Gordon Kirkbright in recognition of his contributions to analytical spectroscopy and to science in general. Although the fund is administered by the Association of British Spectroscopists (ABS) Trust, the award is not restricted to spectroscopists.

Applications are invited for the 2017 Gordon Kirkbright Bursary. For further information contact John Chalmers email: vibspecconsult@aol.com. The closing date for entries is 31 December 2016.

Contributed by John Chalmers

MUACC 2016

The Midwestern Universities Analytical Chemistry Conference (MUACC) is a gathering of analytical chemists organized on a yearly basis on a traveling location in this broad area of the USA. MUACC has witnessed major developments in analytical chemistry and uses the conference as an instrument of modernization. Attracting scientists at all levels — including faculty from small and large research universities, undergraduate institutions, industrial laboratories, as well as postdoctoral and graduate students — MUACC helps shaping the future of analytical chemistry by discussing the current state of the art, identifying new research trends, and introducing new scientists to the community. MUACC 2016 will be hosted by the Department of Chemistry at the University of Illinois at Urbana-Champaign on October 13-15th, 2016. We are now open for registration and abstract submission. Oral presentations are given as "chalk-talks" in order to foster creativity and open interactions between attendants. Please visit http://muacc.scs.illinois.edu/ for more information.

Obituaries

Richard Castino
Beloved Friend, Colleague and NYSAS Officer Richard, 66, of Twp. of Washington, NJ, passed away on Sunday, May 22, 2016. He was born in New York City to Frank and Olga Castino. Beloved husband of Diane Castino. Devoted nephew of Nilda Bonino and her late husband Silvio, Maria Clara Castino and her late husband Stephen and the late Armando Achino. Dear cousin of the late Vivian Bonino, Robert Castino and his wife Della, Elaine Asciak and her late husband Michael, the late Dennis Bonino and his wife Cheryl, Steven Castino and his wife Diane. Cherished uncle of Robert and Brian Cavotto. Dear brother-in-law of Suzanne Cavotto. He was a graduate of Cliffside Park High School and Rutgers University. He earned a variety of Masters Degrees in mathematics, education and biochemistry. He was the past Chair and Treasurer of NYSAS. He was employed by Sun Chemical Corporation, Carlstadt, NJ for 40 years. The family will receive their relatives and friends at Becker Funeral Home, 219 Kinderkamack Road, Westwood, NJ on Thursday, May 26 from 3-7 PM.

The service celebrating Richard's life was held at the funeral home on Friday, May 27 at 11 a.m. In lieu of flowers, memorial gifts were made in Richard's name to CJD, cjdfoundation.org. www.becker-funeralhome.com.

Becker Funeral Home, 219 Kinderkamack Road Westwood, NJ 07675 (201) 664-0292

Contributed by Debbie Peru

Sara M. Freeman
Passed away Saturday, June 4, 2016 at Hospice of the Western Reserve in Cleveland, Ohio with her family by her side. She was born on April 17, 1957 in Steubenville, Ohio to Ernest and Josephine (Wuchetich) Freeman. Sara has lived in Streetsboro the past 20 years and was a member of St. Joan of Arc Church in Streetsboro. She graduated from John Carroll University with a BS in Chemistry, where she went to work for the Ferro Corporation in Independence, Ohio as a Chemist. She was preceded in death by her father, Ernest and is survived by her mother, Josephine M. Freeman, her sister, Jody (Dale) Shoemaker, niece Pamela, nephew Nicholas, all of Loveland, Ohio and her aunt, George Ann Goheen of Orlando, Florida. The Mass of Christian Burial was held at 10 a.m. Wednesday, June 8, 2016 at St. Joan of Arc Church in Streetsboro with Father Pat Ferraro officiating. The family ask that in lieu of flowers, memorial donations may be made to the American Cancer Society. Condolences and memories of Sara may be shared with the family at www.sscfuneralhomes.com.

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Contributed by Thomas Steele

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