

8/1/2013



1285 Chenango Street
Binghamton, NY 13901
(607) 771-0393 Phone
(607) 771-0658 FAX
CAGE: 5D7K6

The Honorable Richard Hanna
Chairman
Subcommittee on Contracting and Workforce
Of the Committee on Small Business
Congress of the United States
U.S. House of Representatives
2361 Rayburn House Office Building
Washington, DC 20515-0315

Thank you for the opportunity to discuss the merits of the relationship between a high technology small business such as ours (RPA), and a university research institution such as Binghamton University (BU).

We have found several business outreach programs provided by Binghamton University beneficial to RPA. We have taken advantage of two programs the university offers on a regular basis. Those programs are Strategic Partnership for Industrial Resurgence (SPIR) and the Integrated Electronics Engineering Center (IEEC).

The SPIR program allows our company access to graduate student resources to support internal research and development (IRAD) projects that our company undertakes. We submit a program plan to BU that describes the basic elements of the IRAD project as well as the specific talent that we are looking for to supplement our existing staff capabilities. The university then evaluates our program to ensure that it fits the goals of SPIR and if approved, forwards the description to the proper graduate department to determine what current students could fit our requirements.

The chosen graduate student(s) then work at our facilities for 20 hours per week for an entire 15 week semester. Together, we analyze the project and create a set of realizable goals to accomplish during this timeframe. We provide them with the necessary resources to be successful, and the university assigns a faculty advisor to support the project. The SPIR program and the business split the cost of salary for the student for the semester.

All parties involved in the process benefit greatly from this program. The student experiences the industry side of working in a high technology field, rather than the purely academic experience. He or she also is entitled to tuition reimbursement by the program in the same manner as a graduate teaching or university research assistant would be. The university faculty are provided with feedback on graduate students' ability to set and achieve specific goals. And the company has the ability to both advance our IRAD programs, but also to evaluate potential candidates for employment. RPA has evaluated approximately 10 graduate students since we began participating in the SPIR program, and has hired three of them as full time RPA employees, all of which are still on our staff.

8/1/2013



1285 Chenango Street
Binghamton, NY 13901
(607) 771-0393 Phone
(607) 771-0658 FAX
CAGE: 5D7K6

Each year, we are asked to evaluate the SPIR program for BU so that they can direct feedback to New York State lawmakers who oversee the budgets for State University of New York (SUNY) operation and programs. We always provide a positive review of SPIR, as even if an individual graduate student does not necessarily fit our requirements on either the planned project or as a future RPA employee, we consider that a positive effect of the process. We can determine which graduate students best fit our needs during a fifteen week trial period as a SPIR participant, without putting them directly on our payroll.

The IEEC department at BU has also been a great asset to small, high technology companies such as ours. This entity at the university provides us with access to both equipment, and research resources with respect to production of state of the art electronics.

A small technology business such as RPA must be capable of developing products that can compete on a global scale. In the electronics industry, consumer product production is almost entirely produced off shore. Off shore electronics assembly providers seek those products that will be produced in very high volume with associated large amounts of revenue. Profit margins on consumer level volume are rather small by percentage, requiring those assembly houses to obtain the highest level of process success leading to the lowest amount of errors and waste.

To attain such levels requires sophisticated electronics inspection and analysis capabilities for which the equipment can be quite expensive. Electron beam, x-ray, and other inspection devices are necessary to spot problems on a product that contains high density electronic components, often with hidden access to contact points between a carrier (such as a circuit board) and a component (such as a ball grid array – or BGA).

Companies such as RPA focus efforts on more niche electronics products, looking for gaps in the marketplace where a specific need cannot be readily filled by a large volume consumer product. In the case of RPA, specifically, we focus on real-time signal processing systems primarily for the training and simulation industry, although we do undertake efforts in other markets where we see a technology gap as well.

Our lower volume, niche products, however, are held to the same or better standards for product quality than high volume electronics are. And, given the smaller volume and associated revenue, it becomes even more imperative that we achieve the same levels of product manufacturing process quality and low error / waste as consumer electronics production warrants. It would be very onerous for a small business to have to purchase the inspection equipment let alone to maintain the staff to support its proper use.

The IEEC at BU provides us with access to such equipment and has the staff trained to both operate several inspection systems and evaluate the results produced by them. We have taken advantage of IEEC systems to perform x-ray inspection of high density

8/1/2013



1285 Chenango Street
Binghamton, NY 13901
(607) 771-0393 Phone
(607) 771-0658 FAX
CAGE: 5D7K6

electronics, vibration and shock testing, destructive testing of failed products, and several other services they can offer. We are also asked to provide a yearly evaluation of the IEEC program for NYS lawmakers, and in those reports we can provide direct savings to our company based upon both design and manufacturing process improvement as well as those savings applied directly to equipment and labor that we would otherwise need to procure.

There are also other advantages of having access to Binghamton University resources that we take advantage of. Those would be to further educate our own workforce and to look for teaming relationships with BU faculty to compete for research contracts targeted towards RPA areas of interest.

We provide tuition assistance for our employees to attain advanced degrees in their field of practice. To date, we have partially or fully funded two Masters Degrees in Electrical Engineering, one Master Degree in Computer Science, and one Bachelor's Degree in Electrical Engineering at Binghamton University. While we have some cases where our employees are seeking their degrees from another university, the convenience of having a local, accredited university for our employees allows us to keep our workforce educated to those levels necessary to maintain the skills we need to compete with other small businesses in our field.

We have, in the past, also looked to BU for faculty partners to compete for Small Business Technology Transfer (STTR) contracts that fall within the purview of RPA's products and experience. We have not been as successful with this endeavor as of yet, which leads us to a conversation regarding how existing, local, small businesses could better succeed in BU teaming relationships.

The greater Binghamton area has a long history of providing products and services in the Training and Simulation marketplace. In fact, this was the home of the industry as founded by Ed Link and his Blue Box pilot training system. The company that Link built has been through many transitions over the years, of which only a fraction of its size during the 1960's, 70s, 80s, and 90s remains in the area.

However, the downsizing of the Link simulation company also sparked the creation of several small businesses that now compete in specific portions of Training and Simulation industries. Companies that target real-time visualization, display technology, control systems, medical, and new areas of interest in the simulation industry remain in region. RPA is one such company, having formed in 1995 as a result of workforce shifting to other regions of the United States by the owner of Link at the time.

These Link spinoffs have been successful at finding market-share for their products and services. We must continually advance our offerings to maintain competitive advantages and provide state of the art solutions. In the case of RPA, we have successfully used the SPIR and IEEC programs as previously described.

8/1/2013



1285 Chenango Street
Binghamton, NY 13901
(607) 771-0393 Phone
(607) 771-0658 FAX
CAGE: 5D7K6

RPA has also been very successful at competing for Small Business Innovation Research (SBIR) contracts, having won six Phase 1 awards, and five Phase 2 competitive efforts. But, these have all been without a university research partner. SBIR programs do not require an accredited academic research partner. STTR programs do require such a partner.

As previously mentioned, we did propose on one STTR effort with BU as our research partner. We have also done the same on one proposal using Penn State as the partner (the founders of RPA are both Penn State graduates). We did not win either of these proposed efforts.

Feedback from the BU teamed STTR proposal by the reviewing agency targeted a weak relationship between the topic area (a real-time visualization project for training and simulation) and existing BU research projects and areas of interest. Universities such as the University of Central Florida (UCF), Old Dominion, University of Iowa, and many others are acknowledged as experts in many training and simulation related fields. With companies in this area that are well established in specific portions of these fields, I believe it would be of direct benefit to the entire region to have a group of BU researchers with similar interests and areas of expertise. There are a few BU faculty who perform research and studies related to training and simulation, but these are not necessarily aligned with a specific need or needs of existing local businesses.

This is not to say that such research is not valuable. It is simply to point out that many local companies, including RPA, could benefit more directly from a closely aligned partnership with BU that would work towards a common set of research goals and areas of interest, helping to advance the products and services provided by an existing employer base in the region. Jobs in the training and simulation marketplace are exactly those targeted by education programs such as Science, Technology, Engineering, and Mathematics (STEM) initiatives which lead to excellent wages and benefits. Being able to compete with companies in other areas (with other university partners) for STTRs in the field of training and simulation would directly benefit the local economy and provide a measureable impact.

In conclusion, it is obvious that local companies find many direct benefits of having a high quality, local research university such as Binghamton University in our area. BU, specifically, offers many excellent programs of which many local companies take advantage. SPIR and IEEC have had direct, positive impacts on RPA. We have advanced our own products and employed best candidates as a result of SPIR. The classroom resources have supported us as well, in keeping our workforce educated to the levels necessary to compete globally in our field. We find some synergy with research projects at the local university, but could benefit in a greater capacity if there were a formal partnership between local training and simulation companies and researchers at BU. This could lead to advancements in many areas for which local

8/1/2013



1285 Chenango Street
Binghamton, NY 13901
(607) 771-0393 Phone
(607) 771-0658 FAX
CAGE: 5D7K6

businesses might not otherwise have the resources to take on themselves. The support from the local university is very helpful and appreciated by local businesses such as ours. But as with any partnership, we do see room for improvement in more closely aligned research that could benefit the entire region.

Respectfully,

A handwritten signature in black ink that reads "Richard E. Pray". The signature is written in a cursive style with a large, sweeping underline.

Rick Pray
President
RPA Electronic Solutions, Inc.